ATTACHMENT E
REV. B

CONTRACT DOCUMENTATION REQUIREMENTS LIST (CDRL)

FOR THE EOS/METSAT INTEGRATED PROGRAMS

AMSU-A INSTRUMENT

REVISED SEPTEMBER 1999

GODDARD SPACE FLIGHT CENTER
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GREENBELT, MARYLAND

CONTRACT DOCUMENTATION REQUIREMENTS LIST (CDRL)

FOR THE EOS/METSAT ISNTEGRATED PROGRAMS

AMSU-A INSTRUMENT

Prepared under the direction of:

Original signed *12/23/94*

S. Krimchansky Date
EOS/METSAT Project AMSU-A Instrument Manager

and

Original signed *12/28/94*

M. Domen Date
EOS PM Project AMSU-A Instrument Manager

Approval:

Original signed *12/23/94*

H. McCain Date
METSAT Project Manager, GSFC

Approval:

Original signed for *1/3/95*

M. Donohoe Date
EOS PM Project Manager, GSFC

RELEASE DATE:

DOCUMENT CHANGE RECORD

SHEET

CHANGE DOCUMENT: NUMBERED		REVISION	DATED	COPY NO.
CHANGE (DATE)	TO INCORPORATE THE CHANGE INTO THE DOCUMENT: 1. ADD PAGES	2. REMOVE PAGES	OTHER COMMENTS REGARDING THIS CHANGE (AUTH., INSTRUCT., ETC.)	
12/18/95	Part B - Changes on 7, 13 Part C- Changes on 60, 99; repagination beginning at 100	Part B - Changes on 7, 13 Part C- Changes on 60, 99; repagination beginning at 100	Rev. A - CCR 1378, Mod 25	
09/10/99	Part C – Changes on 49	Part C – Changes on 49	Rev. B – CCR 1549, Mod 68	

NOTE: After revising the document, file this sheet in document preceding table of contents.

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Part A. INTRODUCTION, DEFINITIONS, AND DISTRIBUTION INSTRUCTIONS

1.0 INTRODUCTION

This Contract Documentation Requirements List (CDRL) is revised to add the work necessary to supply additional Advanced Microwave Sounding Unit-A (AMSU-A) instruments that are compatible with the NOAA Meteorological Satellites (METSAT) spacecraft. This new work is in addition to the original work necessary to supply AMSU-A instrument(s) for the Earth Observing System (EOS) PM spacecraft.

This document defines the requirements for deliverable documentation to be provided by the AMSU-A contractor. Part A includes the introduction, definitions, and instructions for mailing and/or distribution. Part B presents the CDRL item by item, with due dates, quantity, and a distribution key. Part C provides a description of each item and describes use, and preparation information. Except where specifically indicated to the contrary, the formats and drawing standards used shall be those normally used by the AMSU-A Contractor and/or by its subcontractors.

This document includes that subset of CDRLs that pertains to areas discussed in the following EOS/METSAT AMSU-A specifications:

(a) METSAT Project Configuration Management Plan, S-480-17A.

(b) Performance Assurance Requirements (PAR) for the EOS/METSAT Integrated Programs AMSU-A Instrument, Attachment D of the contract, S-480-79, dated October 10, 1994.

(c) EOS Project Calibration Management Plan, 420-03-01, dated January 30, 1990.

(d) Performance and Operational Specification for the EOS/METSAT Integrated Programs AMSU-A Instrument, Attachment C of the contract, S-480-80, dated December 1994.

(e) EOS Instrument Project Software Management Plan, 422-10-04, dated August 30, 1990.

(f) EOS Interface Control Document for AMSU-A (to be generated).

(g) EOS General Instrument Interface Requirements Document for the EOS Observatory, 422-11-12-01 Rev. A, dated January 1994.

(h) Statement of Work for the EOS/METSAT Integrated Programs AMSU-A Instrument, Attachment A of the contract, dated December 1994.

(i) Work Breakdown Structure for the EOS/METSAT Integrated Programs AMSU-A Instrument, Attachment B of the contract, dated December 1994.

(j) EOS Unique Instrument Interface Document (UIID) for AMSU-A, 422-12-12-02.

(k) ATN - KLM General Instrument Interface Specification (GIIS) IS-3267415 for METSAT.

(l) Unique Instrument Interface Specification (UIIS) for AMSU-A1, IS-2617547 for METSAT.

(m) Unique Interface Specification for AMSU-A2, IS-2624483 for METSAT.

2.0 DEFINITION OF DUE DATES/MATURITY

The following definitions apply to the "DUE DATE, MATURITY" column in Part B:

(a) DUE DATE

- Proposal: Items that are provided with the proposal and subject to negotiation prior to contract go-ahead.
- PDR, CDR, CPR, etc.: Preliminary Design Review, Critical Design Review, Calibration Peer Review, etc. Documentation received 10 working days prior to review, unless otherwise stated.
- As Generated: After each initial edition, revision, addition, etc. Items that are critical to schedule, performance, or interface shall be transmitted to GSFC by facsimile or express mail within 48 hours of generation.
- Monthly: with monthly status reports
- Weekly: with weekly status reports
- T: Launch Date
- DACM: X days after contract modification

(b) MATURITY

- Preliminary: The initial submission of an item. To be completed as is practicable at the time of preparation.
- Final: The complete thorough submission of an item for approval, review, or information; if submitted with proposal it is subject to contract negotiation. This does not preclude updating at a later date. Any updates shall require the same "approval/review" process as was required for the previous submissions.
- Current: The best up-to-date information available at the time.

Other entries in the "DUE DATE, MATURITY" column are self explanatory.

3.0 MAILING AND/OR DISTRIBUTION

The following definitions apply to the "Distribution (DIST)" and "Quantity (QTY)" columns in Part B:

- A: Documentation shall be submitted with the proposal in accordance with Section L of the Request for Proposal.

- B: In accordance with the contract clauses.

- C:

No. of Copies	GSFC Addressee	GSFC Code
1	Contracting Officer	284.2
1	Technical Officer	481
Balance	Configuration Mgmt. Office	481
2	EOS Project Office	422

4.0 DEFINITION OF CATEGORIES

The following definitions apply to "Submission Category (CAT)" column in Part B:

- A: Approval -- Documents in this category require written GSFC approval prior to use. Receipts by GSFC shall occur within the time specified in the contract. Requirements for resubmission shall be as specified in letter(s) of disapproval.

- I: Information -- Documents in this category require receipt by GSFC within the time period specified in the contract for the purpose of determining current program status, progress, and future planning requirements. When Government evaluations reveal inadequacies, the contractor will be directed to correct the documents.

Part B. EOS/METSAT DOCUMENTATION LISTING

0.0 PLANS AND REVIEW DATA PACKAGES (0XX SERIES)

SUB NO.	DOCUMENT	DUE DATE, MATURITY	QTY	DIST	CAT
001	Project Plan Update	With Proposal	5	A	I
		60 DACM, Final	5	C	A
002	Project Organization Chart Update	With Proposal	5	A	I
		60 DACM, Final	5	C	A
003	Performance Measurement System Implementation Plan and System Implementation Plan Update	With Proposal	5	A	I
		60 DACM, Final	5	C	A
004	Detailed Schedules Update	With Proposal	5	A	I
		60 DACM, Final	5	C	A
005	Configuration Management Plan Update	With Proposal	5	A	I
		60 DACM, Final	5	C	A
006	DELETED				
007	Contamination Control Plan Update	PDR, Prelim	5	C	I
		CDR, Final	5	C	A
008	EOS Software Management Plan	30 Days after Contract Award, Prelim	5	C	I
		DCR, Final	5	C	A
		SWPDR, Rev	5	C	A
009	DELETED				
010	Make or Buy Plan Update	With Proposal, Final	5	A	A

SUB NO.	DOCUMENT	DUE DATE, MATURITY	QTY	DIST	CAT
011	New Technology Reporting Plan	Previously Completed			
012	Small Business and Small Disadvantaged Business Concerns Subcontracting Plan	Previously Completed			
013	DELETED				
014	Design Concept Review (DCR) Data Package	Previously Completed			
015	WBS Diagram and Task Description Update	With Proposal 30 DACM, Final	5 5	A C	I A
016	Preliminary Design Review (PDR) Data Package	Previously Completed			
017	EOS Software Preliminary Design Review (SWPDR) Data Package	Previously Completed			
018	EOS Calibration Management Plan	PDR, Final	15	C	A
019	EOS Calibration Peer Review (CPR) Data Package	Each CPR, Final	50	C	I
020	Critical Design Review (CDR) Data Package	CDR, Final	50	C	I
021	EOS Software Critical Design (SWCDR) Data Package	SWCDR, Final	50	C	I
022	Performance Verification Plan	Additional Updates, as required	15	C	A

SUB NO.	DOCUMENT	DUE DATE, MATURITY	QTY	DIST	CAT
023	Fabrication and Assembly Flow Plan Update	With Proposal CDR, Final Updates as required, 15 days of change	5 5 5	A C C	I A A
024	DELETED (Mod 25)				
025	EOS In-Flight Checkout Plan	CDR, Final	5	C	A
026	EOS Software Test Readiness Review (SWTRR) Data Package	SWTRR, Final	15	C	I
027	RESERVED				
028	EOS Software Acceptance Review (SWAR) Data Package	SWAR, Final	15	C	A
029	Pre-Environmental Review (PRER) Data Package	PRER, Final	15	C	I
030	RESERVED				
031	RESERVED				
032	Pre-Ship Review (PSR) Data Package	PSR, Final	25	C	I
033	EOS Software Test Plan	SWCDR, Final	15	C	I
034	RESERVED				
035	Spares Program Plan Update	With Proposal 30 DACM, Final	5 5	A C	I A

SUB NO.	DOCUMENT	DUE DATE, MATURITY	QTY	DIST	CAT
036	Manufacturing Process and Design Documentation Baseline Review (MPDDBR) Data Package	30 Days after Contract Authority to Proceed	5	C	A
037	Manufacturing Readiness Review (MRR) Data Package	30 Days after MPDDBR	5	C	A

1.0 MATH MODELS AND ANALYSES (1XX SERIES)

SUB NO.	DOCUMENT	DUE DATE, MATURITY	QTY	DIST	CAT
101	EOS Radiometric Math Model	PDR, Prelim CDR, Final	3 3	C C	I I
102-A	EOS Structural Math Model	CDR, Final Update as required	5	C	I
102-B	METSAT Structural Math Model	CDR, Final Update as required	5	C	I
103-A	EOS Thermal Math Model	CDR, Final Update as required	5	C	I
103-B	METSAT Thermal Math Model	CDR, Final Update as required	5	C	I
104	Engineering Analyses Reports	As Generated, Final	5	C	I
105	Contractor-Generated Internal Technical Memoranda	As Generated, Final	5	C	I
106	DELETED				
107	Operations Hazards Analyses	30 Days prior to an activity or use of a facility	5	C	I
108	Failure Modes and Effects Analysis (FMEA)	30 Days prior to CDR, Final Class I change submittal, Final	5 5	C C	I I

SUB NO.	DOCUMENT	DUE DATE, MATURITY	QTY	DIST	CAT
109	Parts and Devices Stress Analyses	Update as Generated, Final (Maintain on-site)			I
110	Reliability Assessment	30 Days prior to CDR, Final	15	C	I
		Class I change submittal, Final	15	C	I
111	Trend Analysis (List of Parameters to be Monitored)	CDR, Final	15	C	I
112	Worst Case Analyses	As Generated, Current	5	C	A

2.0 ENGINEERING AND TEST REPORTS (2XX SERIES)

SUB NO.	DOCUMENT	DUE DATE, MATURITY	QTY	DIST	CAT
201	Previously Designed, Fabricated, or Flown Hardware Data	CDR, Final	5	C	A
202	Data on Uncured, Out-of-Date Materials	30 Days prior to material usage, Final	5	C	A
203	Configuration Management Status Report	Monthly, Current	5	C	A
204	Performance Assurance Status Report	Monthly, Final	5	C	I
205	Audit Reports	As Generated, Final	5	C	I
206	Component and Subassembly Test Reports for all Subcontracted Items	As Generated, Final (Maintained on-site)			I
207	Engineering Test Reports	As Generated, Final	5	C	I
208	Performance Verification Reports	30 Days after end of Test/Activity, Final	5	C	I
209	Malfunction/Failure Reports Notifications	Oral Within 24 Hours to Technical Officer and/or Flight Assurance Manager,			I
		Prelim Written 3 Working days	5	C	I
	Analysis & Proposed Actions	As Generated, Final	5	C	A
210	MRB Decisions on Non-Conformance	Update as Generated, Final	5	C	I

SUB NO.	DOCUMENT	DUE DATE, MATURITY	QTY	DIST	CAT
211	Problem and Failure Report Close-out	Completion of the Required Actions, Final	5	C	A
212	Alerts	As Generated, Final	5	C	A
213	Responses to Alerts	10 Working Days after receipt of Alert, Current	5	C	I
214	Responses to NASA Problem Notices	10 Working Days after receipt of notification, Current	5	C	A
215	Trend Analysis Reports (Monitoring of Selected Parameters)	PRER, Final PSR, Final As Generated (Within 10 Days of trend detection), Current	15 15 15	C C C	I I I
216	Hazard Control Verification Report	PRER, Final	5	C	I
217	EOS Software Test Reports	SWTRR, Final SWAR, Final	15 15	C C	I I
218	Data on Non-Conventional Application of Materials	30 Days prior to material usage, Final	5	C	A
219	Instrument Output Data Records Obtained During Ground Testing	Update as Generated, Final (Maintain on-site)			I
220	Other Technical Reports and Reissued Reports	Update as Generated, Final	5	C	I

SUB NO.	DOCUMENT	DUE DATE, MATURITY	QTY	DIST	CAT
221	DELETED (Mod 25)				
222	Specification Compliance and Calibration Data Books	PSR for EOS PFM, Final PSR for FM 3, Final PSR for FM 4, Final PSR for FM 5, Final PSR for FM 6, Final	15 15 15 15 15	C C C C C	A A A A A
223	New Technology Reports	Update as Generated, Final	B	B	I
224	Safety Compliance Data Package	Delivery of the Instrument to Integration Contractor	15	C	A
225	Responses to Formal Actions	30 Days after receipt of action from GSFC, Final	15	C	A
226	EOS Final Report-Design Through Flight Evaluation	Launch + 5 mo, Prelim Launch + 7 mo, Final	5 75	C C	I A

3.0 SPECIFICATIONS AND OPERATIONS (3XX SERIES)

SUB NO.	DOCUMENT	DUE DATE, MATURITY	QTY	DIST	CAT
301	Specification on Parts, Materials, Subassemblies/Subsystems Update	30 DACM, Prelim	5	C	I
		Update as Generated, Final	5	C	A
302	Instrument Functional Logic Diagrams	Previously Completed			
303	Command List and Description	Previously Completed			
304	Engineering Drawings for Materials Applications	15 Days after Request	5	C	I
305	EOS Engineering Telemetry Description	CDR, Update	5	C	A
306	EOS Software Product Specifications	In accordance with EOS PM Project Software Management Plan (422-10-04) Table 4-1	15	C	A
307	Operation and Maintenance Manuals	At start of PFM System Integration, Final	5	C	A
		At start of FM-3 System Integration	5	C	A
308	Performance Verification Specification	CDR, Final	15	C	A
309	EOS Software Assurance Specifications	In accordance with EOS PM Project Software Management Plan (422-10-04) Table 4-1	15	C	A

4.0 PROCEDURES (4XX SERIES)

SUB NO.	DOCUMENT	DUE DATE, MATURITY	QTY	DIST	CAT
401	Standard Practices and Procedures Update	Final (Maintain on-site)			
402	EOS Software Standards and Procedures	Previously Completed			
403	DPA Procedures Update	30 DACM, Final	5	C	A
404	EOS Operational In-Flight Calibration Procedures	PDR, Prelim	30	C	I
		End of First Unit Tests, Final	5	C	I
405	EOS General Operating Command Procedures	End of First Unit Tests, Final	5	C	A
406	Transportation and Handling Procedures	30 Days prior to CDR, Prelim	5	C	I
		30 Days prior to ship, Final	5	C	A
407	Storage Testing Procedures	CDR, Prelim	5	C	I
		End of First Unit Tests, Final	5	C	A
408	DELETED				
409	Detailed Test Procedures	30 Days prior to First Unit Tests, Final	5	C	A
410	Detailed Ground Calibration Procedures	30 Days prior to First Unit Tests, Final	5	C	A

SUB NO.	DOCUMENT	DUE DATE, MATURITY	QTY	DIST	CAT
411	GSE Test Procedures	10 Days prior to test of STE, Final	5	C	A
412	EOS Performance Verification Procedures for Spacecraft	30 Days prior to each activity, Final	5	C	A
413	Assembly Procedures	Update as Generated, Final (Maintain on-site)			I
414	Standard Repair Procedures	Update as Generated, Final (Maintain on-site)	5	C	A
415	EOS Software Test Procedures	30 Days prior to each activity, Final	5	C	I

5.0 EOS/METSAT MISCELLANEOUS (5XX SERIES)

SUB NO.	DOCUMENT	DUE DATE, MATURITY	QTY	DIST	CAT
501	Audit Program Description	Previously Completed			
502	Developer Derating Policy Update	At CDR	5	C	A
503	Weight and Power Budgets	Monthly, Current	5	C	I
504	Limited Life Items List	30 DACM, Update	5	C	I
		30 Days prior to CDR, Final	5	C	I
		Updates as required, Final	5	C	I
505	Non-Standard Parts Data Package	30 Days prior to procurement, Final	5	C	A
		30 Days prior to use (if in stock), Final	5	C	A
506	Material Lists, Lubrication List, and Processes Lists Update	30 DACM, Update	5	C	I
		30 Days prior to CDR, Final	5	C	A
		Updates as required	5	C	A
507	Critical Items List (CIL)	30 DACM, Update,	5	C	I
		30 Days prior to CDR, Final	5	C	A
		Class I change submittal, Final	5	C	A
508	EOS Acquisition Activities Plan	Previously Completed			
509	Approved or Controlled Drawings	Update as Generated, Final	5	C	I

SUB NO.	DOCUMENT	DUE DATE, MATURITY	QTY	DIST	CAT
510	Material Review Board Waiver/ Deviation Requests	As Generated, Final	5	C	A
511	Safety Waiver Requests	As Generated, Final	5	C	A
512	Configuration Change Requests (CCR) Class I	As Generated, Final	5	C	A
513	DELETED				
514	EOS Software Discrepancy Reports	As Generated, Final	5	C	I
515	Drawing Tree	Update as Generated, Final	5	C	I
516	Instrument Interface Control Document	Update as Generated, Final	5	C	A
517	RESERVED				
518	Indentured Drawing List	With First Unit delivery, Final	5	C	I
		With other units (if modified), Final	5	C	I
519	EOS AMSU-A Instrument Description Document	PDR, Prelim	5	C	I
		End of PFM Tests, Final	5	C	I
520	RESERVED				
521	Weekly Status Reports	Weekly, Current	1	*	I
522	Photographic Records	As Generated, Final	See DID	**	I

SUB NO.	DOCUMENT	DUE DATE, MATURITY	QTY	DIST	CAT
523	Performance Assurance Status Reports	Monthly, Final	5	B	I
524	Material Usage Agreement/Stress Corrosion Evaluation	As Generated, Final	5	C	A
525	As-Built Materials List	With end-item delivery, Final	5	C	I
526	Acceptance Data Package	End-item delivery, Final	15	C	A
527	As-Designed Parts List	DCR, Prelim	5	C	I
		30 Days prior to PDR, Rev	5	C	I
		30 Days prior to CDR, Rev	5	C	I
		Update as Generated, Final (As-Built Parts List)	5	C	A
528	RESERVED				
529	Reports of Work	Monthly, Final	5	C	I
530	Material Inspection and Receiving Report	As Generated, Final	B	B	I
531	DOD Industrial Plant Equipment Requisition (DD Form 1419)	As Generated, Final	B	B	A

SUB NO.	DOCUMENT	DUE DATE, MATURITY	QTY	DIST	CAT
532	DOD Property Record (DD1342)	As Generated, Final	B	B	I
533	Annual Report of Government Owned/ Contractor-Held Property (NASA Form 10-18)	As Generated, Final	B	B	I
534	Monthly and Quarterly Financial Management Report (NASA Form 533M/533Q)	As Generated, Final	B	B	I
535	Subcontracting Reports (Standard Form 294)	As Generated, Final	B	B	I
536	Summary Subcontracting Report (Standard Form 295)	As Generated, Final	B	B	I
537	Report on NASA Subcontracts (NASA Form 667)	As Generated, Final	B	B	I
538	Configured Article List (CAL)	Pre-Ship Package, Final	15	C	I

* Sent directly to Technical Officer; hard copy to follow via letter
** Sent directly to Technical Officer

Part C. DATA ITEM DESCRIPTIONS

DESCRIPTION OF REQUIRED DATA

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1. Title:

PROJECT PLAN

2. CDRL No.:

001

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3. Reference:

Statement of Work (Attachment A of the contract)
Work Breakdown Structure (Attachment B of the contract)
RFP Section L.3

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4. Use:

Describes how the project is organized and managed. It provides the management structure, its system of operation, responsible lines of communications, and key personnel assignments.

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5. Related Documents:

CDRL #002-004, 008, 015, 203-205, 501, 523

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6. Preparation Information:

PROGRAM MANAGEMENT

This plan shall address the overall organization, management approach, and structure of the AMSU-A Program plus its interrelationships with the parent company and the subcontractors.

Describe how and where the program will operate during all phases of the contract. Delineate how the requirements of the Statement of Work (SOW) (Attachment A of the contract) will be achieved and include, as a minimum, a description of planned activities for identifiable SOW requirements.

Describe your concept of the nature of the tasks and related potential problems. Discuss your approach to problem avoidance and/or solution. Address the degree to which your proposed personnel and procedures are proven through similar experience.

This plan shall address interfaces with the Government and with any GFE suppliers. Indicate such things as critical paths, long-lead items and significant milestones down to at least the lowest level of the WBS. Show how this effort will be undertaken in view of the fact that spacecraft interfaces have not been fully defined. Indicate your needs for additional definition of spacecraft and mission, and when this information is required to avoid schedule slippage. Address the flexibility of the proposed system for accepting mission dictated changes, such as number or locations of channels, and when such changes must be defined in order to prevent major redesign of any instrument subsystem.

This plan shall include graphical displays such as flow diagrams, WBS, logic networks, etc., to reduce verbal descriptive material.

This plan shall provide an organizational chart(s) and sufficient supplemental narrative to describe fully the following:

a. Organization proposed for carrying out the project showing inter- relationships of technical management, business management, and subcontract management, from lower level through intermediate management to top-level management with detailed explanation of:

   - The authority of your AMSU-A Program Manager relative to other ongoing programs and applicable support organizations within the company structure. Discuss the program manager's control over essential resources and functions necessary to accomplish the work.

   - How and by whom interdepartmental work will be monitored and the authority of the program manager over interdepartmental work.

   - Process to be followed by the program manager in obtaining decisions beyond his/her authority and in resolving priority conflicts for resources and functions not under the program manager's direct control such as personnel, finances, and facilities.

b. Contractual procedures proposed for the project to effect administrative and engineering changes, describing any differences from existing procedures.

This plan shall describe management techniques to be employed in minimizing program costs and schedule impacts, including controls to be exercised over subcontractors and suppliers. Describe how issues will be surfaced in a timely manner and at the proper levels.

This plan shall discuss and illustrate the proposed AMSU-A Performance Assurance organizational structure, including staffing plans, reporting channels, authority and responsibilities, and management visibility. Discuss whether the technical, test, manufacturing and system safety/quality assurance/reliability/configuration management personnel required for this program (as indicated in your proposed labor hours) are presently on your payroll and immediately available for this work. State the number and kind of persons who would have to be hired, and plans to obtain them.

This shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: PROJECT ORGANIZATION CHART UPDATE

2. CDRL No.: 002

3. Reference:

Statement of Work (Attachment A of the contract)
RFP Section L.5.4

4. Use:

Identifies the contractor's AMSU-A project organization with names, functions, lines of authority, coordination, etc.

5. Related Documents:

CDRL #001, 015

6. Preparation Information:

As required in Project Plan. Final version 30 days after award, and as approved thereafter.

This shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

PERFORMANCE MEASUREMENT SYSTEM IMPLEMENTATION PLAN AND SYSTEM IMPLEMENTATION PLAN UPDATE

2. CDRL No.:

003

3. Reference:

Contract Clause H3
Contract Section L.3

4. Use:

To indicate cost/schedule performance.

5. Related Documents:

CDRL #001-002, 004, 015, 523

6. Preparation Information:

Prepare in accordance with Section L.3 of the contract.

This shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

DETAILED SCHEDULES UPDATE

2. CDRL No.:

004

3. Reference:

Statement of Work (Attachment A of the contract), Para. 2
Work Breakdown Structure (Attachment B of the contract)
EOS PM Project Software Management Plan (422-10-04), Para. 4.1

4. Use:

For understanding and mapping out in detail the most efficient way of melding together all of the design, test, hardware and software elements for providing the flight equipment, GSE, S/C integration, data analyses and support functions, and documentation at the required program delivery times.

5. Related Documents:

CDRL #001, 003, 008, 014-015, 523

6. Preparation Information:

The schedule for the design phase, through the Critical Design Review (CDR), shall be detailed by task with expected start and completion dates. The schedule for the procurement phase shall be detailed by major items, components, or definable subassembly, such as antenna, scan mechanism, etc., and by class. This latter element shall be subdivided into standard electrical components, integrated circuits, etc.

The schedule for the fabrication phase shall be detailed to the mechanical subassembly level and to the electronic board level, and shall show the expected start and completion dates, as well as substantive in-process milestones.

Once the final design has been established a critical subsystem and parts list shall be compiled which shall show the date all parts or components were ordered and promised delivery dates.

For the build-up of an instrument, an assembly/test flow diagram shall be generated to show sequences of fabrication, assembly, integration, and test for components, subsystems and system, and includes quality assurance test points and associated inspection level requirements.

The contractor shall prepare a comprehensive schedule plan, which describes their schedule system. This plan shall explain/describe the schedule administration/control. It is the intent of the Government to use the contractor's in-house schedule system as the mechanism for reporting schedule status provided that the schedule control and monitoring system is capable of the following:

a. Maintaining the original baseline schedule dates for comparison with current dates.

b. Defining the time duration of all tasks such as design, manufacturing, and testing, etc.

c. Defining the internal and external relationships between events.

d. Defining the planned start and completion dates for all milestones and events.

e. Defining the slack/float for all subsystems.

f. Defining the impact of all early starts or slips on future milestones/events.

g. Providing the status of all major test and integration articles (GSE) by actual and projected dates.

h. Defining the Path of Criticality.

i. Relating events/milestones to the Work Breakdown Structure.

j. Providing the status of each subsystem and/or black box by actual and projected dates.

k. Providing for electronic transfer of schedule data to the Intermediate Level in ASCII format.

This schedule plan should describe how the schedules are developed, maintained and updated. The internal review cycle of the scheduling process shall be explained. The contractor shall explain how internal audits/reviews ensure that scheduling data reported to the Government accurately reflects the work status.

This schedule plan shall describe the method used to ensure compliance required by the GSFC Performance Measurement System (PMS) GHB 5112.1 dated September 23, 1988 for vertical and horizontal traceability, and also describe the method of achieving summary level schedules and verifying their results.

The contractor shall provide the Government with a series of integrated network schedules and bar charts as described below:

a. Level 1 Master Schedule - This schedule shall include programmatic milestones/events for the overall program from design, manufacturing, integration and test through launch including data on major procurements.

b. Intermediate Logic Networks - These networks shall be established for each subsystem or subassembly to the electronic board level. Upon request for the Government, the Contractor shall supply the Government with more information from the detail schedules, which the Contractor maintains.

c. 90 Day Window Report - This report shall reflect all the events which are expected to start/complete within 90 days after the current reporting cycle.

d. End Item Float Report - A monthly report shall be submitted for each deliverable subsystem or subassembly comparing the current month float to the float of the previous month and explain any changes.

e. Monthly Analysis - A monthly analysis shall be submitted that will contain a brief description of the current status of each subsystem or subassembly along with descriptions of any existing or potential problems areas.

These schedule shall be presented by a flow type PERT diagram, and by Gantt schedule milestone charts. A preliminary PERT diagram submitted with the proposal shall contain a minimum of 50 events.

This schedule plan and the corresponding schedules shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

CONFIGURATION MANAGEMENT PLAN

2. CDRL No.:

005

3. References:

METSAT Project Configuration Management Plan (S-480-17A)
EOS PM Project Software Management Plan (422-10-04), Para. 4.1, Table 4-1

4. Use:

Defines a configuration management system which conforms to the METSAT Project Configuration Management Plan (S-480-17A) and provides a means of control for all changes affecting form, fit, or function and any impact on performance, cost, or schedule.

5. Related Documents:

CDRL #001, 008, 035, 203, 512

6. Preparation Information:

The contractor's Configuration Management Plan shall describe the scope, approach, methods, and procedures of the system that he will use to implement the configuration management requirements including the NASA Configuration Management Plan. The plan shall at least be written to conform to the METSAT Project Configuration Management Plan (S-480-17A).

This shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: 2. CDRL No.:

DELETED 006

3. References:

4. Use:

5. Related Documents:

6. Preparation Information:

DESCRIPTION OF REQUIRED DATA

1. Title: CONTAMINATION CONTROL PLAN UPDATE

2. CDRL No.: 007

3. References:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provide an integrated contamination control plan:

a. To define level of cleanliness and methods/procedures to be followed to achieve adequate cleanliness/contamination control

b. To define the approach required to maintain cleanliness/contamination control through shipping, observatory integration test, and flight

5. Related Documents:

CDRL #016, 020, 029, 032, 035, 216, 308, 406-407, 412
AMSU-A Interface Control Document (ICD)
EOS General Interface Requirements Document (422-11-12-01 Rev. A)
ATN-KLM General Instrument Interface Specification (IS-3267415)
Unique Instrument Interface Specification for the AMSU-A1 (IS-2617547)
Unique Interface Specification for the AMSU-A2 (IS-2624483)

6. Preparation Information:

A. Pre-flight:

1. Define the methods, procedures, and schedule requirements for integrating observatory instruments contamination control requirements in this control plan.

2. Define methods for determining a budget for allowable accretions for each phase of the program.

3. Define levels of cleanliness and methods/procedures to be followed for this Project, from start of contract to end of mission, referencing all analyses to get performed to assess instrument sensitivity and to define requirements. Show that these methods/procedures are in consonance with the EOS GIRD (422-11-12-01 Rev. A), AMSU-A ICD, GIIS (IS-3267415), and UIIS (IS-2617547, IS-2624483) requirements.

4. Identify critical fabrication and assembly activities which will be performed in clean rooms or in clean room benches at the 100,000 or 10,000 class level or NHB 5340.2. Provide an integrated operations flow chart.

5. Identify the controls over atmospheric contaminants, temperature, and humidity which will be used during electronic fabrication (including soldering), integration, testing, transportation, and launch. Indicate how others controls will meet the requirements, including a description of all facilities that will be used.

6. Identify design features of shipping containers which will keep contamination of flight hardware during shipping and storage within the contamination budget.

7. Define the requirements and methods/procedures required to maintain cleanliness during spacecraft and laboratory fabrication, integration, and test.

8. Show that the efforts to control contamination are consistent with controls to prevent electrostatic damage.

9. Indicate the methods and frequency for monitoring cleanliness levels and accretions to ensure compliance with requirements.

10. Define criteria for materials selection and acceptance relative to contamination control.

11. Specify criteria for bake-out of critical subsystems.

12. Provide a contamination training program. All personnel required to work in clean areas with flight hardware must be trained to work according to clean area procedures.

13. Define overall vent location and orientation policy, indicating how unintentional venting shall be avoided. (All applicable drawings should show vent locations that comply with venting analysis.)

14. Identify cleaning, inspection, and bagging to be used for parts, flight subassemblies, and the assembled instrument. Identify how other activities will meet the requirements, and reference the procedures used for these activities.

B. Flight

1. Define the design requirements and design approach for contamination control for launch operation through mission.

This shall be prepared in accordance with the PAR (S-480-79).

This shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: EOS SOFTWARE MANAGEMENT PLAN

2. CDRL No.: 008

3. References:

EOS PM Project Software Management Plan (422-10-04), Para. 4.1, Table 4-1

4. Use:

Provides overview and control for a disciplined approach to the instrument software management.

5. Related Documents:

CDRL #001, 004-005, 017, 021, 026, 028, 033, 108, 217, 306, 309, 402, 415, 514

6. Preparation Information:

This shall apply to all of the software provided by the AMSU-A contractor for the EOS Program, including on-board software used to conduct system testing. Software that is institutional and multiuser, or part of a "generic" capability, shall be identified as to its use on the Project, where it is documented, and how it is managed. It is not controlled by this plan. However, all mission "peculiar" or mission "unique" changes to a basic capability shall fall within the scope of this plan.

This shall be prepared in accordance with the requirements defined in NASA-DID-M000, "Software Management Plan", and the EOS PM Project Software Management Plan (422-10-04).

This shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: DELETED

2. CDRL No.: 009

3. References:

4. Use:

5. Related Documents:

6. Preparation Information:

DESCRIPTION OF REQUIRED DATA

1. Title:

MAKE OR BUY PLAN UPDATE

2. CDRL No.:

010

3. References:

Contract Clause G.11, 18-52.215-78
METSAT Project Configuration Management Plan (S-480-17A)

4. Use:

Defines the contractor program which identifies whether contractor will either "make" or "buy" major subsystems, assemblies and components.

5. Related Documents:

CDRL #023

6. Preparation Information:

Submit with proposal in accordance with 18-52.215-78 (See Section L) and in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: NEW TECHNOLOGY REPORTING PLAN

2. CDRL No.: 011

3. Reference:

Contract Clause G.7
NFS 18-52.227-70

4. Use:

Defines contractor plan for reporting new technology to the government in accordance with provisions and the requirements set forth in the contract schedule clauses for new technology.

5. Related Documents:

CDRL #535, 536

6. Preparation Information:

Prepare in accordance with NFS 18-52.227-70 and NFS 18-52.235-72.

Submit in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

SMALL BUSINESS AND SMALL DISADVANTAGED BUSINESS CONCERNS SUBCONTRACTING PLAN

2. CDRL No.:

012

3. Reference:

Contract Clause H.5
Contract Clause I.1

4. Use:

Provide contractor plan for subcontracting to small business concerns.

5. Related Documents:

None

6. Preparation Information:

Prepare in accordance with Clause H.5 and FAR Clause 52.219-9.

Submit in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: DELETED

2. CDRL No.: 013

3. Reference:

4. Use:

5. Related Documents:

6. Preparation Information:

DESCRIPTION OF REQUIRED DATA

1. Title: DESIGN CONCEPT REVIEW (DCR) DATA PACKAGE

2. CDRL No.: 014

3. Reference:

Statement of Work (Attachment A of the contract), Para. 4.2
Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

To define derived requirements for satisfying the instrument specification, to analyze the conceptual design, to perform tradeoffs, and to determine system margins for instrument requirements such as sensitivity, polarization, stability, calibration, and to review programmatic plans leading to the Preliminary Design Review.

5. Related Documents:

CDRL #004, 016-017, 019-021, 026, 028-029, 032, 104-107, 111, 215, 225

6. Preparation Information:

The design concept review package shall be prepared in accordance with the PAR (S-480-79) and shall include, as a minimum:

a. Agenda

b. Copies of responses to action items and recommendations generated at prior reviews

c. Presentation material (e.g., viewgraph copies) for the subject review

d. Analysis and reports required at the review

e. Supportive material. Where supportive material has been submitted prior to or concurrent with this requirement, such material may be incorporated within this requirement by reference.

f. System definition, analysis, and specification

g. Instrument definition, analysis, and specification

h. Interaction of major elements of the instrument

i. Design approaches and operational concepts

The minutes and results of this review, with action items and responses (CDRL #225), shall also be submitted.

This shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: 2. CDRL No.:

WBS DIAGRAM AND TASK DESCRIPTION UPDATE 015

3. Reference:

Statement of Work (Attachment A of the contract)
Work Breakdown Structure (Attachment B of the contract)
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)

4. Use:

For identification of AMSU-A program tasks and any changes to WBS.

5. Related Documents:

CDRL #001-004, 016, 020

6. Preparation Information:

For accepted changes to the WBS structure, the contractor shall document the changes with an updated WBS diagram and description of task elements.

This shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

PRELIMINARY DESIGN REVIEW (PDR)
DATA PACKAGE

2. CDRL No.:

016

3. Reference:

Statement of Work (Attachment A of the contract), Para. 4.6
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)
Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)
METSAT Project Configuration Management Plan (S-480-17A)

4. Use:

Presents the Flight Equipment and GSE design and operation and S/C interface aspects prior to EM fabrication.

5. Related Documents:

CDRL #007, 014-015, 017-021, 023-026, 028-029, 032, 035, 101-109, 111-112, 201, 207, 215, 224-225, 301-303, 305, 308, 404-405, 503-504, 506-507, 509-511, 515-516, 518
EOS Calibration Management Plan (420-03-01)

6. Preparation Information:

The design review package shall be prepared in accordance with the PAR (S-480-79), and shall include, as a minimum:

a. Agenda

b. Copies of responses to action items and recommendations generated at prior reviews

c. Presentation material (e.g., viewgraph copies) for the subject review

d. Analyses and reports required at the review

e. Supportive material. Where supportive material has been submitted prior to or concurrent with this requirement, such material may be incorporated within this requirement by reference.

This data package shall also contain information to cover the instrument system and subsystem designs, and GSE, including electrical, mechanical, thermal, software, test and interface aspects of the design configuration. This data package shall include, as applicable:

a. Performance specification (subsystems and GSE)

b. Block diagram and description of operation (instrument and GSE)

c. Schematic and logic diagrams (including waveforms, timing, and components)

d. Mechanical configuration drawings

e. Interface descriptions

f. FMEA status/results

g. Worst case analyses

- Electrical circuits
- Scanning drive system
- Lubrication and lubrication loss
- Tolerance and tolerance sensitivity analysis (including thermal and mechanical considerations)

h. Stress analyses using NASTRAN with hand verification

i. Thermal analysis

- Detectors
- Scanning drive system
- Electronics
- Antenna
- In-flight calibrators

j. RFI considerations

k. Weight and power

l. Reliability analysis/assessment

m. Test plan (including all environmental tests)

n. Manufacturing considerations

o. Maintainability considerations

p. Materials and processes lists

q. Summary of deviations/waivers

r. Contamination control and monitoring considerations

s. Spares program

t. Safety compliance data package

u. NSPAR summary (number submitted/approval status)

v. System safety hazards analyses

- Hazards identification matrix
- Single point failure summaries
- Risk assessment rationale

The minutes and results of this review, with action items and responses (CDRL #225), shall also be submitted.

This shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

EOS SOFTWARE PRELIMINARY DESIGN REVIEW (SWPDR) DATA PACKAGE

2. CDRL No.:

017

3. Reference:

Statement of Work (Attachment A of the contract), Para. 4
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)
EOS PM Project Software Management Plan (422-10-04), Para. 4.1
METSAT Project Configuration Management Plan (S-480-17A)

4. Use:

Presents the preliminary software/firmware design and operation aspects prior to EM Fabrication.

5. Related Documents:

CDRL #008, 014-016, 020-021, 025-026, 028, 032-033, 104, 225, 303, 306, 309, 415, 508

6. Preparation Information:

This design review package shall address, as a minimum:

a. Agenda

b. Copies of responses to action items and recommendations generated at prior reviews

c. Presentation material (e.g., viewgraph copies) for the subject review

d. Analyses and reports required at the review

e. Supportive material. Where supportive material has been submitted prior to or concurrent with this requirement, such material may be incorporated within this requirement by reference.

f. Software documentation in compliance with the EOS PM Project Software Management Plan (422-10-04)

g. Software, both instrument-based and external, necessary to operate, test, calibrate, design, and analyze the instrument

h. Compatibility of AMSU-A software with the spacecraft (S/C), and for operation and calibration through EOSDIS

i. Software necessary to analyze AMSU-A test data and for in-flight engineering analysis

j. Software capability to provide all AMSU-A operational modes

k. Software required for operations analyses utilizing the the System Test Equipment (STE)

l. Software for supporting instrument verification, integration, monitoring of performance, ground operations, as well as supporting evaluation of data acquired during S/C integration and flight operations

m. Providing and maintaining realtime and off-line software for instrument calibration

n. Calibration in all channels

p. Software for a formatted realtime data dump

q. Software test plan

The minutes and results of this review, with action items and responses (CDRL #225), shall also be submitted.

This shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

EOS CALIBRATION MANAGEMENT PLAN

2. CDRL No.:

018

3. Reference:

Statement of Work (Attachment A of the contract), Para. 2, 3, 4
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)

4. Use:

Controlling document for definition of calibration requirements, equipment and methods.

5. Related Documents:

CDRL #016, 019, 022, 025, 035, 101, 222, 404, 410
EOS Calibration Management Plan (420-03-01), Para. 3, 3.2

6. Preparation Information:

This shall be prepared in accordance with the EOS Calibration Management Plan (420-03-01).

This shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

EOS CALIBRATION PEER REVIEW (CPR) DATA PACKAGE

2. CDRL No.:

019

3. Reference:

Statement of Work (Attachment A of the contract), Para. 4.9, 4.10
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)

4. Use:

For providing detailed calibration information to the CPR team members prior to the Peer Review.

5. Related Documents:

CDRL #014, 016, 018, 020, 029, 032, 104, 222, 404, 410
EOS Calibration Management Plan (420-03-01), Para. 3, 3.4

6. Preparation Information:

Documentation shall be provided for each of the three CPRs. For Peer Review 1, a detailed calibration scenario shall be provided. It shall, as a minimum, include planned calibration equipment and facilities. It shall also address calibration accuracies.

Documentation shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

CRITICAL DESIGN REVIEW (CDR) DATA PACKAGE

2. CDRL No.:

020

3. Reference:

Statement of Work (Attachment A of the contract), Para. 4.8
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)
METSAT Project Configuration Management Plan (S-480-17A)
Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Presents the Flight Equipment and GSE design and operation and S/C interface aspects as evaluated since the PDR and prior to major Flight Model parts ordering.

5. Related Documents:

CDRL #007, 014-016, 019, 021-026, 028, 032, 035, 101-106, 108-112, 201, 206-207, 215, 220, 225, 302, 308, 406-407, 504, 506-507, 509, 516, 518, 527
EOS Calibration Management Plan (420-03-01)

6. Preparation Information:

The design review package shall be prepared in accordance with the PAR (S-480-79), and shall include, as a minimum:

a. Agenda

b. Copies of responses to action items and recommendations generated at prior reviews

c. Presentation material (e.g., viewgraph copies) for the subject review

d. Analyses and reports required at the review

e. Supportive material. Where supportive material has been submitted prior to or concurrent with this requirement, such material may be incorporated within this requirement by reference.

f. Updates of items required from PDR

g. Component specifications, designs, schematics, and diagrams

h. Design adequacy data (drawings, analyses, and testing plans

i. Parts and devices application review reports

j. Worst-case analysis

k. FMEA

l. Breadboard, component, and EM subsystem functional test results

m. Critical Items List (CIL)

n. Single point failure summaries with risk acceptance rationale

o. Actions to control or eliminate identified system safety hazards

p. Parts and components. The contractor will identify all new/different components that are intentionally substituted for not available or obsolete heritage comonents. Each new/different component will be analyzed to establish the technical risk and level of complexity associated by its substitution. Contemplated risk mitigation must be delineated and rationalized.

q. Design differences. The comtractor shall identify all proposed design changes that make the proposed instruments different than the K, L, M AMSU-A instruments. Each design change shall delineate the reason for the change, supply supporting analysis for the change, and provide a detail of all drawings affected by the change.

r. Science continuity. The contractor shall analyze and delineate all science and engineering parameters that are expected to fall outside of the family history characteristics of heritage AMSU-As. This analysis should include predictions and comparisons of heritage data for:

- Frequency
- Bandwidth
- NEΔT
- Linearity
- Calibration accuracy
- Calibration repeatability
- Beam width
- Beam width clustering

s. METSAT UIIS Update: Update the METSAT UIIS telemetry tables to reflect the new AMSU-A instrument characteristics.

The minutes and results of this review, with action items and responses (CDRL #225), shall also be submitted.

This shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

EOS SOFTWARE CRITICAL DESIGN REVIEW (SWCDR) DATA PACKAGE

2. CDRL No.:

021

3. Reference:

Statement of Work (Attachment A of the contract), Para. 4.7
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)
EOS PM Project Software Management Plan (422-10-04), Para. 4.1
METSAT Project Configuration Management Plan (S-480-17A)

4. Use:

Presents the software/firmware design and operation and interface aspects as evaluated since the PDR and prior to major Flight Model ordering and development.

5. Related Documents:

CDRL #008, 014, 016-017, 020, 026, 028, 033, 207, 217, 220, 225, 306, 309, 415, 508, 514

6. Preparation Information:

This design review package shall address, as a minimum:

a. Agenda

b. Copies of responses to action items and recommendations generated at prior reviews

c. Presentation material (e.g., viewgraph copies) for the subject review

d. Analyses and reports required at the review

e. Supportive material. Where supportive material has been submitted prior to or concurrent with this requirement, such material may be incorporated within this requirement by reference.

f. All documentation as called for in the EOS PM Project Software Management Plan (422-10-04)

g. Updates of items required for SWPDR

h. Software test plans and results

The minutes and results of this review, with action items and responses (CDRL #225), shall also be submitted.

This shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

PERFORMANCE VERIFICATION PLAN

2. CDRL No.:

022

3. References:

METSAT Project Configuration Management Plan (S-480-17A)
Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provide overall view of the AMSU-A Performance Verification and Test Program, detailing test philosophy objectives and rationale for all testing and integration activities planned for the program.

5. Related Documents:

CDRL #016, 018, 020, 033, 106-112, 208, 217, 406, 412, 415
EOS General Interface Requirements Document (422-11-12-01 Rev. A)
AMSU-A Interface Control Document (ICD)
ATN-KLM General Instrument Interface Specification (IS-3267415)
Unique Instrument Interface Specification for the AMSU-A1 (IS-2617547)
Unique Interface Specification for the AMSU-A2 (IS-2624483)

6. Preparation Information:

This documentation shall incorporate the requirements of the Mission System Description & Validation Approach and shall be developed in accordance with the PAR (S-480-79).

The plan shall contain, as a minimum:

a. Performance Verification Matrices which delineate performance and design requirements versus the assessment or test verification methods to prove compliance with the system specifications

b. Identification of whether the verifications to be demonstrated by test are conducted on either test module or flight hardware/software

c. Those performance parameters utilized for the purpose of hardware and software verification

d. Any and all development testing planned for the program that will be defined in the plan with objectives, levels, hardware status, software status, schedules, etc., shall be included

e. Requirements for GSE, test equipment, and simulators to be used during testing

f. Detailed flow chart showing correlated sequence of development and subsystem testing, including integration and qualification/acceptance activities for components, subsystem, and instrument. Show how these sequences interface with the launch site activities requirements

g. Envelopes of environments and test levels for components, subsystems, and instrument

h. Description of facility requirements such as thermal vacuum chamber interface, instrumentation, simulator methods, etc.

i. Descriptions of functional measurements planned at the component, subsystem, integration and system level, as well as descriptions of methods planned to make the measurements

j. A component verification and status matrix showing the basis for providing and accepting the design and hardware/software on the basis of test and/or assessment

k. Qualification and acceptance test plans with performance parameter accept/reject criteria for the instrument, subsystem, and component level test parameters

l. Description of when and how frequently all redundant components and cross-strapped paths will be tested during each environmental test activity

m. Post-launch in-orbit verification test plan

n. A list of performance parameters by subsystem shall be identified that will be used for monitoring stability data trends during the instrument qualification and acceptance test programs and during observatory testing and mission

The contractor shall provide plans to completely validate all instrument software for which the contractor is responsible. The preliminary version of this plan shall indicate best known requirements, test levels, etc. Unknown or uncertain elements and values shall be clearly indicated as "Final TBD," and the plan shall indicate how and when finalization is to occur.

This shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

FABRICATION AND ASSEMBLY FLOW PLAN UPDATE 023

2. CDRL No.:

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Define the fabrication, assembly, inspection and test sequences, locations, operations and controls for hardware articles at all levels of assembly to be manufactured by the prime contractor on this contract.

5. Related Documents:

CDRL #010, 016, 020

6. Preparation Information:

Provide narrative material and flow charts which define the contractor's fabrication and assembly plan. This plan shall include, as a minimum:

a. Description and the sequence of fabrication and assembly operations and processes

b. Identification of the site(s) of the operation(s)

c. Identification of tooling and facilities required

d. Description of the cognizant organizational structure(s)

e. Requirements for inspection and test stations

f. Description of system of controls on fabrication and assembly, including documented procedures

g. Integrated manufacturing and inspection flow chart which depicts all fabrication, processing and assembly operations; testing at the sub-component levels; associated inspection points and documentation. The sequence of this flow chart shall start with the point of entry of purchased materials, parts, components, or GFP and the initiation of manufacturing and conclusion with as assembled electrical or mechanical component being delivered for acceptance test, or an item of structure being delivered for integration

This shall be prepared in accordance with the PAR (S-480-79).

This shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: 2. CDRL No.:

DELETED (Mod 25) 024

3. Reference:

4. Use:

5. Related Documents:

6. Preparation Information:

DESCRIPTION OF REQUIRED DATA

1. Title: 2. CDRL No.:

EOS IN-FLIGHT CHECKOUT PLAN 025

3. Reference:

Statement of Work (Attachment A of the contract), Para. 2, 3
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)

4. Use:

Define procedure to be followed per checking in-orbit performance of the AMSU-A instrument.

5. Related Documents:

CDRL #016, 018, 020, 404-405

6. Preparation Information:

This shall present the instrument operation modes with command sequences and telemetry readings for determining the in-orbit performance. Operation limits shall be identified for each operation made and trouble-shooting sequences identified.

This shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

EOS SOFTWARE TEST READINESS REVIEW (SWTRR) DATA PACKAGE

2. CDRL No.: 026

3. Reference:

Statement of Work (Attachment A of the contract), Para. 4.11
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)
METSAT Project Configuration Management Plan (S-480-17A)
EOS PM Project Software Management Plan (422-10-04), Para. 4.1

4. Use:

Presents the description and results for the S/W and System Integration/Test program.

5. Related Documents:

CDRL #008, 014, 016-017, 020-021, 028, 032, 104, 217, 225, 303, 306, 309, 514

6. Preparation Information:

This design review package shall address, as a minimum:

a. Agenda

b. Copies of responses to action items and recommendations generated at prior reviews

c. Presentation material (e.g., viewgraph copies) for the subject review

d. Analyses and reports required at the review

e. Supportive material. Where supportive material has been submitted prior to or concurrent with this requirement, such material may be incorporated within this requirement by reference.

f. All documentation as called for in the EOS PM Project Software Management Plan (422-10-04)

g. Test and Integration program descriptions and results

h. Software test results

i. Failure report summaries including status of action and rationale for closure

j. As-built documentation summary

The minutes and results of this review, with action items and responses (CDRL #225), shall also be submitted.

This shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: RESERVED

2. CDRL No.: 027

3. Reference:

4. Use:

5. Related Documents:

6. Preparation Information:

DESCRIPTION OF REQUIRED DATA

1. Title:

EOS SOFTWARE ACCEPTANCE REVIEW (SWAR) DATA PACKAGE

2. CDRL No.:

028

3. Reference:

Statement of Work (Attachment A of the contract), Para. 4.13
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)
METSAT Project Configuration Management Plan (S-480-17A)
EOS PM Project Software Management Plan (422-10-04), Para. 4.1

4. Use:

For review of all test data and designs for compliance against specification requirements, variances, mission operations requirements, etc.

5. Related Documents:

CDRL #008, 014, 016-017, 020-021, 026, 032, 104, 207-209, 217, 220, 225, 303, 306, 309, 405, 514

6. Preparation Information:

This data package shall address, as a minimum:

a. Agenda

b. Copies of responses to action items and recommendations generated at prior reviews

c. Presentation material (e.g., viewgraph copies) for the subject review

d. Analyses and reports required at the review

e. Supportive material. Where supportive material has been submitted prior to or concurrent with this requirement, such material may be incorporated within this requirement by reference.

f. Results of the functional and interface tests

g. Malfunctions and corrective actions

h. Reliability predictions

i. Comparison of measured performance with requirements and discussion of the effect of any variance and waivers

j. Mission operation constraints

k. Safety requirements

l. Maintenance and operation manuals

m. Interface concerns, problems and solutions

n. Compatibility of instrument with observatory flight support equipment, ground support equipment and operational ground equipment

The minutes and results of this review, with action items and responses (CDRL #225), shall also be submitted.

This shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

PRE-ENVIRONMENTAL REVIEW (PRER) DATA PACKAGE

2. CDRL No.:

029

3. Reference:

Statement of Work (Attachment A of the contract), Para. 4.12
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)
METSAT Project Configuration Management Plan (S-480-17A)
Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Presents the description and results for the Test and Calibration program.

5. Related Documents:

CDRL #007, 014, 016, 018, 020, 024-025, 032, 104, 107, 207, 209, 211, 225, 307, 409, 411, 525

6. Preparation Information:

This design review package shall be prepared in accordance with the PAR (S-480-79) and shall include, as a minimum:

a. Agenda

b. Copies of responses to action items and recommendations generated at prior reviews

c. Presentation material (e.g., viewgraph copies) for the subject review

d. Analyses and reports required at the review

e. Supportive material. Where supportive material has been submitted prior to or concurrent with this requirement, such material may be incorporated within this requirement by reference.

f. Test and Integration program descriptions and results

g. Failure report summaries including status of action and rationale for closure

h. As-built documentation summary

The minutes and results of this review, with action items and responses (CDRL #225), shall also be submitted.

This shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: RESERVED

2. CDRL No.: 030

3. Reference:

4. Use:

5. Related Documents:

6. Preparation Information:

DESCRIPTION OF REQUIRED DATA

1. Title: RESERVED

2. CDRL No.: 031

3. Reference:

4. Use:

5. Related Documents:

6. Preparation Information:

DESCRIPTION OF REQUIRED DATA

1. Title: PRE-SHIP REVIEW (PSR) DATA PACKAGE

2. CDRL No.: 032

3. Reference:

Statement of Work (Attachment A of the contract), Para. 4.15
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)
METSAT Project Configuration Management Plan (S-480-17A)
Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

For review of all test data and designs for compliance against specification requirements, variances, mission operations requirements, etc.

5. Related Documents:

CDRL #007, 014, 016, 019-020, 024, 028-029, 034-035, 104, 110, 206-217, 219-222, 224-225, 302-303, 305-307, 309, 404-407, 409-414

6. Preparation Information:

This data package shall address, as a minimum:

a. Agenda

b. Copies of responses to action items and recommendations generated at prior reviews

c. Presentation material (e.g., viewgraph copies) for the subject review

d. Analyses and reports required at the review

e. Supportive material. Where supportive material has been submitted prior to or concurrent with this requirement, such material may be incorporated within this requirement by reference.

f. Results of the functional and interface tests

g. Malfunctions and corrective actions

h. Reliability predictions

i. Comparison of measured performance with requirements and discussion of the effect of any variance and waivers

j. Mission operation constraints

k. Contamination avoidance requirements

l. Safety requirements

m. Maintenance and operation manuals

n. Spares for flight equipment and GSE

o. GSE maintenance service contracts

p. Review of instrument handling procedures

q. Interface concerns, problems and solutions

r. Status of launch site preparation activities

s. Orbital operations plans

t. End-item data packages (submit a summary of the content prior to review and have package available for inspection at review)

u. Compatibility of instrument with observatory flight support equipment, ground support equipment and operational ground equipment

This applies to the PFM and all Flight Models.

The minutes and results of this review, with action items and responses (CDRL #225), shall also be submitted.

This shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

EOS SOFTWARE TEST PLAN

2. CDRL No.:

033

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)
EOS PM Project Software Management Plan (422-10-04), Para. 4.1, Table 4-1
METSAT Project Configuration Management Plan (S-480-17A)

4. Use:

Provides overall view of the instrument's software acceptance test program, detailing test philosophy objectives and rationale for all software testing and hardware/software integration activities planned for the program.

5. Related Documents:

CDRL #008, 017, 021-022, 217, 306, 309, 402

6. Preparation Information:

This shall incorporate the requirements of the PAR (S-480-79), NASA-DID-M400, "Test Plan DID", and the EOS PM Project Software Management Plan (422-10-04).

This shall include, as a minimum:

a. Tests to be accomplished to demonstrate that the software meet requirements

b. Test environment

c. Required test data

d. Expected results

e. Test schedules

f. Special operating conditions (if required)

This shall also describe any special test support equipment (simulators, emulators, etc.) needed for the test activities, as well as support from other organizations that may be required to complete the testing.

Issuance of a new or revised test plan shall be required if modifications to the baselined software are implemented. This shall be accomplished in accordance with the configuration management system defined in the Configuration Management Plan (S-480-17A).

This shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: RESERVED

2. CDRL No.: 034

3. Reference:

4. Use:

5. Related Documents:

6. Preparation Information:

DESCRIPTION OF REQUIRED DATA

1. Title: SPARES PROGRAM PLAN UPDATE

2. CDRL No.: 035

3. Reference:

Statement of Work (Attachment A of the contract), Para. 2
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)
Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)
METSAT Project Configuration Management Plan (S-480-17A)

4. Use:

To review contractor's spares program.

5. Related Documents:

CDRL #005, 007, 016, 018, 020, 032, 409, 412, 414

6. Preparation Information:

The Spares Program Plan shall define and justify the contractor's position for the spares proposed for the AMSU-A program. This plan shall also present the schedule and method for obtaining the spares.

Further, this plan shall address all of the requirements of the SOW (Attachment A of the contract), paragraph 2.

This shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

MANUFACTURING PROCESS AND DESIGN DOCUMENTATION BASELINE REVIEW (MPDDBR)

2. CDRL No.:

036

3. Reference:

Statement of Work (Attachment A of the contract), Para. 4.16

4. Use:

Ascertain the status of current AMSU-A as-built documentation. Determine which documentation is adequate for use as is and delineate all documentation that needs updates and/or changes.

5. Related Documents:

CDRL #023, 114, 204, 206-208, 225, 515

6. Preparation Information:

The following documentation shall be reviewed:

a. AMSU-A document drawing tree and its identified drawings

b. Detailed drawings for:

- Antenna
- Receivers
- Power distribution
- Electronics
- Structure
- Mechanisms
- GSE and support equipment

c. Manufacturing flow and subsystem shop orders

d. Product specifications and their SOWs

e. Integration and test plan

f. Test procedures

g. Performance assurance witness and review check points

h Purchased item procurement specifications and associated SOWs

i End-to-end manufacturing flow and embedded shop orders

Using the drawing tree as a guide, each drawing detail shall be reviewed for completeness and the necessity for possible upgrade or change.

The minutes and results of this review, with action items and responses (CDRL #225), shall also be submitted.

This shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

MANUFACTURING READINESS REVIEW (MRR) DATA PACKAGE

2. CDRL No.:

037

3. Reference:

Statement of Work (Attachment A of the contract), Para. 4.17
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)
Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

To demonstrate that all related manufacturing documentation, processes and fixtures are in place before hardware manufacture begins.

5. Related Documents:

CDRL #023, 110, 114, 204, 225

6. Preparation Information:

This review shall address, as a minimum:

a. Manufacturing flow

b. Manufacturing procedures

c. Performance assurance product check points and evaluation criteria

d. Standard applicable in-house processes

e. Special/unique tooling/fixturing

f. Facilities

g. Personnel resources (time phased)

This data package shall delineate the status of each document as to its acceptability for use as is. If updates and/or changes are required, these shall be estimated in required manhours.

The minutes and results of this review, with action items and responses (CDRL #225), shall also be submitted.

This shall be submitted in accordance with Part B (0XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

EOS RADIOMETRIC MATH MODEL

2. CDRL No.:

101

3. Reference:

Statement of Work (Attachment A of the contract), Para. 1.1
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)

4. Use:

For evaluating the end-to-end radiometric performance of the instrument; for allocation of error budget, etc.

5. Related Documents:

CDRL #016, 018, 020, 102-104, 207, 220, 222, 404, 410
EOS Calibration Management Plan (420-03-01), Para. 3
EOS General Interface Requirements Document (422-11-12-01 Rev. A)

6. Preparation Information:

a. The EOS Radiometric Math Model shall be used to evaluate the end-to-end radiometric performance of the AMSU-A instrument; conduct sensitivity analyses; determine absolute and relative calibration accuracies; identity major error contributors which can be eliminated during the design phase; identify impact of error budget trades; assess instrument performance in terms of Signal to Noise Ratio (SNR), Noise Equivalent Temperature (NEΔT), stability in orbit, etc.

b. The model shall be related to actual test and calibration data; the model shall be updated and refined during the course of the AMSU-A development program until it simulates instrument performance accurately.

c. Also to be included in the model are on-board and preflight ground laboratory calibration algorithms and a data book that contains all pertinent measured data required by the calibration algorithms. The on-board calibration algorithms are used along with ground calibration data to demonstrate that the absolute and relative radiometric accuracies are being met. The on-board calibration algorithms are deliverables, in a form suitable for incorporation into the Earth Observing System Data and Information System (EOSDIS), which convert form digital counts to calibrated spectral radiances based upon all on-board calibration devices. The calibration data shall also be provided in a mutually agreed upon computer-compatible form.

This shall be submitted in accordance with Part B (1XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

EOS STRUCTURAL MATH MODEL

2. CDRL No.:

102-A

3. Reference:

Statement of Work (Attachment A of the contract), Para. 2
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract), Para. 3
Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract), Para. 3.4

4. Use:

For providing instrument interface information to be utilized in various statics and dynamics observatory analyses.

5. Related Documents:

CDRL #016, 020, 101, 103-A, 104, 207, 220
EOS General Interface Requirements Document (422-11-12-01 Rev. A), Para. 11.2
EOS Calibration Management Plan (420-03-01), Para. 3

6. Preparation Information:

The deliverable AMSU-A EOS Structural Math Model shall meet all requirements listed in the EOS GIRD (422-11-12-01 Rev. A). In addition to these requirements, the math model shall be compared with a modal survey carried out on the structural/thermal model to verify frequency and mode shape predictions of the structural math model. The frequency predictions shall agree with the modal survey results to within 5 percent for the first mode and 10 percent for all other significant modes up to 100 Hz. In addition to the frequency correlation, the mode shape correlations between test and the analytical model shall include a cross-orthogonality check, a mode shape geometric similarity check, and a static deflection check. The final update of the structural model shall include any modifications required to correlate the model to the physical test results.

This shall be submitted in accordance with Part B (1XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

METSAT STRUCTURAL MATH MODEL

2. CDRL No.:

102-B

3. Reference:

Statement of Work (Attachment A of the contract), Para. 2
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract), Para. 3
Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract), Para. 3.4

4. Use:

For providing instrument interface information to be utilized in various statics and dynamics observatory analyses.

5. Related Documents:

CDRL #016, 020, 101, 103-B, 104, 207, 220
ATN-KLM General Instrument Interface Specification (IS-3267415)

6. Preparation Information:

The deliverable AMSU-A METSAT Structural Math Model shall meet all requirements listed in the GIIS (IS-3267415). In addition to these requirements, the math model shall be compared with a modal survey carried out on the structural/thermal model to verify frequency and mode shape predictions of the structural math model. The frequency predictions shall agree with the modal survey results to within 5 percent for the first mode and 10 percent for all other significant modes up to 100 Hz. In addition to the frequency correlation, the mode shape correlations between test and the analytical model shall include a cross-orthogonality check, a mode shape geometric similarity check, and a static deflection check. The final update of the structural model shall include any modifications required to correlate the model to the physical test results.

This shall be submitted in accordance with Part B (1XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

EOS THERMAL MATH MODEL

2. CDRL No.:

103-A

3. Reference:

Statement of Work (Attachment A of the contract), Para. 2
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract), Para. 3
Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract), Para. 3.6

4. Use:

To evaluate the thermal performance of the instrument.

5. Related Documents:

CDRL #016, 020, 101, 102-A, 104, 207, 220
EOS General Interface Requirements Document (422-11-12-01 Rev. A), Para. 11.2

6. Preparation Information:

The model shall be composed of at least 250 nodes. The EOS Thermal Math Model shall have sufficient detail of all subsystems and critical interfaces to accurately predict absolute interfaces. These models shall be verified and refined after comparison with thermal test data.

SINDA-compatible and TRASYS-compatible reduce-node versions of the full instrument thermal math model, appropriately documented, are required for analytical integration with the spacecraft. A users guide shall be provided for deliverable math models.

This shall be submitted in accordance with Part B (1XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

METSAT THERMAL MATH MODEL

2. CDRL No.:

103-B

3. Reference:

Statement of Work (Attachment A of the contract), Para. 2
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract), Para. 3
Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract), Para. 3.6

4. Use:

To evaluate the thermal performance of the instrument.

5. Related Documents:

CDRL #016, 020, 101, 102-B, 104, 207, 220
ATN-KLM General Instrument Interface Specification (IS-3267415)

6. Preparation Information:

The model shall be composed of at least 250 nodes. The METSAT Thermal Math Model shall have sufficient detail of all subsystems and critical interfaces to accurately predict absolute interfaces. These models shall be verified and refined after comparison with thermal test data.

SINDA-compatible and TRASYS-compatible reduce-node versions of the full instrument thermal math model, appropriately documented, are required for analytical integration with the spacecraft. A users guide shall be provided for deliverable math models.

This shall be submitted in accordance with Part B (1XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: ENGINEERING ANALYSES REPORTS

2. CDRL No.: 104

3. Reference:

Statement of Work (Attachment A of the contract), Para. 2, 3
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)

4. Use:

To aid in making judgments and decisions regarding numerous specific technical subjects relative to the AMSU-A design. These analysis shall be reviewed periodically through the program both formally (design reviews), and informally (with GSFC Technical Officer).

5. Related Documents:

CDRL #014, 016-017, 019-020, 026, 028-029, 032, 105-106, 109, 111-112, 204, 206-208, 220, 226, 526
EOS General Interface Requirements Document (422-11-12-01 Rev. A)
ATN-KLM General Instrument Interface Specification (IS-3267415)
Unique Instrument Interface Specification for the AMSU-A1 (IS-2617547)
Unique Interface Specification for the AMSU-A2 (IS-2624483)

6. Preparation Information:

Formal documentation of these analyses is required for the design reviews (data package); however, to aid the informal coordination and design monitoring/review with the GSFC team, the Contractor shall supply advance copies of these analyses, herein called Engineering Analyses Reports (EARs), to the Technical Officer. Five copies of each EAR carrying the signature of the contractor's Project Manager shall be delivered on a timely basis - i.e., as they are completed. Each EAR shall be typed but may contain hand-drawn sketches to preserve informality and timeliness. The Contractor, at his discretion, may use the EARs directly or indirectly, as appropriate, to supplement formal documentation requirements so as to avoid unnecessary duplications of effort.

A partial list of possible EARs follows for guidance purposes only and may be amended with the mutual consent of the contractor and the Technical Officer. Similarly, the schedule due dates for each of these EARs shall be mutually agreed upon.

Possible list of EARs includes:

a. Thermal analysis and design

b. Analysis of in-flight calibration techniques, accuracies and expected changes over lifetime

c. Analysis of polarization sensitivity, how to minimize, achieve, and demonstrate

d. Analog amplifier analysis (stage-by-stage, each channel to include SNR, bandwidth, gain, stability, etc.)

e. Logic and timing circuits - functional description, timing diagrams

f. Possible cost savings, increased cost-effectiveness (end of design definition phase)

g. Mechanical-structural analysis and design (Technique used for analysis shall be mutually agreed upon by contractor and Technical Officer)

h. Analysis of bearing-to-housing fits, tolerances, thermal effects

i Results of computer analysis of beam alignment design, tolerances and error budget

j. Scan motor torque analysis

k. Review of how the spacecraft contractor will align and periodically check the alignment of the AMSU-A to the spacecraft

l. Detailed analysis of power requirements and power profile. Following the initial systems review a summary updated chart or table shall be supplied monthly.

m. Detailed weight breakdown analysis, as well as a summary to be updated monthly following initial systems review showing the changes, reasons, and differentiation between calculated, estimated or actual weights

n. Analysis of expected scan linearity and jitter

o. Worst case performance analysis of all mechanical, electrical and optical systems with regard to radiation, age, voltage, and temperature extremes, etc.

This shall be submitted in accordance with Part B (1XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

CONTRACTOR - GENERATED INTERNAL TECHNICAL MEMORANDA

2. CDRL No.:

105

3. Reference:

Statement of Work (Attachment A of the contract), Para. 2
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)

4. Use:

To review technical memoranda related to the AMSU-A program.

5. Related Documents:

CDRL #014, 016, 020, 032, 104

6. Preparation Information:

This memoranda shall be typed or hand-printed and may contain hand-drawn sketches to preserve informality and timeliness.

This memoranda shall be submitted, when requested, in accordance with Part B (1XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: DELETED

2. CDRL No.: 106

3. References:

4. Use:

5. Related Documents:

6. Preparation Information:

DESCRIPTION OF REQUIRED DATA

1. Title: OPERATIONS HAZARDS ANALYSES

2. CDRL No.: 107

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provides analyses of systems hazards related to contractor operations for GSFC review.

5. Related Documents:

CDRL #014, 016, 022, 029, 032, 108-110, 112, 204, 207-208, 216, 406, 412
EOS General Interface Requirements Document (422-11-12-01 Rev. A)
ATN-KLM General Instrument Interface Specification (IS-3267415)
Unique Instrument Interface Specification for the AMSU-A1 (IS-2617547)
Unique Interface Specification for the AMSU-A2 (IS-2624483)

6. Preparation Information:

Performance of an Operations Hazard Analysis (OHA) shall consider the following:

a. Planned configuration at each phase of activity

b. Supporting tools or other equipment specified for use

c. Operational/task sequence, concurrent task effects and limitations

d. Biotechnological factors, regulatory or contractually specified personnel safety and health requirements

e. Potential and unplanned events including hazards introduced by human errors

The OHA shall be used to identify hazardous operations and tasks, the hazardous conditions associated with the tasks, the causes of the hazardous conditions, the risks associated with the hazardous conditions, and recommendations to eliminate or reduce the effects of the hazardous conditions.

The required data for an OHA are drawings, specifications, timelines, procedures, schematics, and hazard analysis of the flight and ground support equipment involved in the operation being analyzed.

The OHA shall be initiated as soon as practicable in the development phase of the Project.

The contractor shall perform the following:

a. Identify all hazardous conditions during testing and ground operations

b. Establish requirements for special equipment, skills, or training

c. Establish cautions and warnings in procedures

d. Detail the proper sequence of tasks to be performed

e. Identify additional safeguards or procedure changes, as necessary

These shall be prepared in accordance with the PAR (S-480-79).

These shall be submitted in accordance with Part B (1XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: FAILURE MODES AND EFFECTS ANALYSIS (FMEA)

2. CDRL No.: 108

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provides insight into failure mode identification, effect, and criticality. Provides background for mission and instrument operations contingency planning.

5. Related Documents:

CDRL #008, 016, 020, 022, 032, 104, 106-107, 109-112, 208, 216, 308, 412, 507, 512

6. Preparation Information:

The FMEA shall be prepared and updated in accordance with the PAR (S-480-79) and S-302-89-01, dated 12/01/89, "Failure Modes and Effects Analysis Procedures for Unmanned Spacecraft and Instruments." The following shall be provided, as a minimum:

a. Failure modes

b. Severity levels of the failure effects. The severity levels in S-302-85-01 are modified to read as follows:

- Criticality 1: Catastrophic. A single failure that could result in loss of human life or serious injury to personnel, or loss of a launch facility, the launch vehicle, or a primary mission objective.

- Criticality 2: Critical. A single failure that could result in damage to a launch facility or launch vehicle, significant degradation of science products (as defined by the Project), or loss of a secondary mission objective.

- Criticality 3: Loss of redundancy or an effect less severe than that of a Criticality 2 failure mode.

c. Critical Items List (CIL)

In addition to the analysis and the CIL, a summary report shall be prepared.

This shall be submitted in accordance with Part B (1XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: PARTS AND DEVICES STRESS ANALYSES

2. CDRL No.: 109

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provides EEE parts and devices stress analyses for evaluation of the AMSU-A instrument circuit designs and instrument parts, devices, and materials.

5. Related Documents:

CDRL #016, 020, 022, 032, 104, 106-108, 110, 112, 204, 208, 216, 412
EOS General Interface Requirements Document (422-11-12-01 Rev. A)
AMSU-A Interface Control Document (ICD)
ATN-KLM General Instrument Interface Specification (IS-3267415)
Unique Instrument Interface Specification for the AMSU-A1 (IS-2617547)
Unique Interface Specification for the AMSU-A2 (IS-2624483)

6. Preparation Information:

These analyses are to be developed by the contractor in accordance with conformance to the derating policy of MIL-STD-975, as well as the PAR (S-480-79).

Analyses of each component (black box) shall be reported to determine the adequacy of the derating of each application of EEE parts and devices.

The analyses reports shall include, as a minimum:

a. Consideration of all expected environmental stresses

b. Consideration of all significant operating parameter stresses at the extremes of anticipated environments

c. Specific identification of each part application that does not conform to the approved derating policy

These shall be retained on-site and shall be made available to the AMSU-A Technical Officer and Flight Assurance Manager, upon request, in accordance with Part B (1XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: RELIABILITY ASSESSMENT

2. CDRL No.: 110

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

1) Sensitivity analyses; 2) evaluations of the effects of design trade-offs or configuration changes; 3) evaluations of the ability of the design to achieve the EOS mission life requirement; 4) probability of success (P_S) evaluation.

5. Related Documents:

CDRL #020, 022, 032, 108-109, 111, 204, 512
EOS General Interface Requirements Document (422-11-12-01 Rev. A)
AMSU-A Interface Control Document (ICD)
ATN-KLM General Instrument Interface Specification (IS-3267415)
Unique Instrument Interface Specification for the AMSU-A1 (IS-2617547)
Unique Interface Specification for the AMSU-A2 (IS-2624483)

6. Preparation Information:

This shall be prepared in accordance with the PAR (S-480-79) as follows:

a. Initial assessments shall use the parts count reliability prediction methodology of MIL-HDBK-217.

b. As design matures, develop a complete reliability block diagram, failure definitions, and mathematical models in accordance with MIL-HDBK-217.

This shall be submitted in accordance with Part B (1XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

TREND ANALYSIS (LIST OF PARAMETERS TO BE MONITORED) (Mod 25)

2. CDRL No.:

111

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract), Para. 7.3.5

4. Use:

Provides tracking of critical engineering and performance parameters.

5. Related Documents:

CDRL #014, 016, 020, 022, 032, 104, 108, 110, 204, 215
EOS General Interface Requirements Document (422-11-12-01 Rev. A)
AMSU-A Interface Control Document (ICD)
Unique Instrument Interface Specification for the AMSU-A1 (IS-2617547)
Unique Interface Specification for the AMSU-A2 (IS-2624483)

6. Preparation Information:

Provide a list identifying key parameters that relate to performance stability. This is a list of parameters to be monitored for trends leading towards loss of stability of operation of AMSU-A.

Establish a system for recording and analyzing desired parameters.

Results to be reviewed with operational personnel prior to launch. Trends should be recorded throughout the mission by the operational personnel.

This shall be performed in accordance with the PAR (S-480-79).

This shall be submitted in accordance with Part B (1XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: WORST CASE ANALYSES

2. CDRL No.: 112

3. References:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provides worst case analyses of critical parameters to determine worst case margins, limits and stresses.

5. Related Documents:

CDRL #016, 020, 022, 032, 104, 106-109, 204

6. Preparation Information:

Data is to be developed by contractor, in accordance with the PAR (S-480-79) for parameters related to items such as electronics circuits, optics, electromechanical devices, and mechanical devices, and mechanical elements.

This shall address the worst case analyses performed on each component. These analyses shall encompass the mission life and shall consider all parameters set at minimum and maximum limits and include the effect of environmental stresses on the operation or parameter.

This shall be submitted in accordance with Part B (1XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

PREVIOUSLY DESIGNED, FABRICATED, OR FLOWN HARDWARE

2. CDRL No.:

201

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provides evaluation of existing hardware designs to ensure that they are compatible with AMSU-A performance, and reliability.

5. Related Documents:

CDRL #016, 020, 032
EOS General Interface Requirements Document (422-11-12-01 Rev. A)
AMSU-A Interface Control Document (ICD)
ATN-KLM General Instrument Interface Specification (IS-3267415)
Unique Instrument Interface Specification for the AMSU-A1 (IS-2617547)
Unique Interface Specification for the AMSU-A2 (IS-2624483)

6. Preparation Information:

This data shall be prepared in accordance with the PAR (S-480-79) and shall incorporate the following, as a minimum:

a. Comparison of each performance, design, environmental, and interface requirement, including margins, for the AMSU-A Project with the corresponding previous requirement

b. Comparison of each performance assurance requirement for the AMSU-A Project with the corresponding previous requirement

c. Identification of waivers and deviations accepted on previous program

d. Comparison of manufacturing information for the proposed hardware with that for the previous hardware

e. Description of all flight experience with the proposed hardware (include failures/anomalies, their cause, and any corrective action)

This shall be submitted in accordance with Part B (2XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

DATA ON UNCURED, OUT-OF-DATE MATERIALS

2. CDRL No.:

202

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provides data on out-of-date materials, proposed for use on AMSU-A, for GSFC review and approval. It also allows for the certification of polymeric materials whose uncured constituents have exceeded their stated shelf life.

5. Related Documents:

CDRL #218, 505-506

6. Preparation Information:

Data from appropriate test to prove that the properties of the material have not been compromised for its intended use.

This shall be prepared in accordance with the PAR (S-480-79).

This shall be submitted in accordance with Part B (2XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: 2. CDRL No.:

CONFIGURATION MANAGEMENT STATUS REPORT 203

3. Reference:

Statement of Work (Attachment A of the contract)
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)
METSAT Project Configuration Management Plan (S-480-17A)

4. Use:

For accessing in near real-time the status of configuration management activities.

5. Related Documents:

CDRL #001, 005, 501, 510-512

6. Preparation Information:

This report shall identify status of in-progress configuration changes, new submitted configuration change requests, and contemplated changes. The report shall also address problems and proposed solutions.

This report shall be brief, to the point, and be a part of the monthly status report to the AMSU-A Technical Officer and shall be submitted in accordance with Part B (2XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: PERFORMANCE ASSURANCE STATUS REPORT

2. CDRL No.: 204

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)
EOS PM Project Software Management Plan (422-10-04), Para. 4.1, Table 4-1

4. Use:

Provides periodic status and information regarding the assurance activities and any deficiencies that may affect the end product.

5. Related Documents:

CDRL #001, 022, 104, 106-107, 109-112, 205, 208-209, 211-214, 501, 505, 523

6. Preparation Information:

This shall be prepared in accordance with the PAR (S-480-79) and shall include the following items, as a minimum:

a. Significant assurance problems, their impact, and proposed corrective actions

b. Key organization and personnel changes

c. Unresolved hazards (safety program)

d. Summary of significant analysis, inspection, and test activities

e. Status of procurements and subcontractor performance assurance programs

f. Summary of audit reports

g. Results of Alert surveys

h. NSPAR status

i. Part/device procurement or screening activities

j. Progress in closure of failure reports

k. Summary reports of developer reviews

l. Packaging review data

The Performance Assurance Status Report shall be submitted either as part of the monthly report or as a separate submittal to NASA. The contractor shall indicate which method of submittal will be used. Negative reports are required.

This should not only discuss the deficiencies, but also the cause of the deficiencies and the intended/actual corrective action.

This shall be submitted in accordance with Part B (2XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: AUDIT REPORTS

2. CDRL No.: 205

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provides results of contractor and subcontractor audits to insure compliance with the PAR and to insure that any deficiency corrective action has been implemented.

5. Related Documents:

CDRL #001, 006, 204, 501

6. Preparation Information:

A documented account of audits shall be provided to management of the audited organization with recommendations for correction of deficiencies. Audit reports shall be made available to the government representative upon request.

These shall be prepared in accordance with the PAR (S-480-79).

These shall be submitted in accordance with Part B (2XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

COMPONENT AND SUBASSEMBLY TEST REPORTS FOR ALL SUBCONTRACTED ITEMS

2. CDRL No.: 206

3. Reference:

Statement of Work (Attachment A of the contract), Para. 2, 3
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)
Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provides descriptions of tests and test results obtained on components or subassemblies acquired by subcontract by the instrument contractor.

5. Related Documents:

CDRL #020, 032, 104

6. Preparation Information:

As a minimum these reports shall identify the requirements and test units, test fixtures, environment, test results, and any failures and corrective actions.

These shall be prepared in accordance with the PAR (S-480-79).

These shall be submitted in accordance with Part B (2XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: ENGINEERING TEST REPORTS

2. CDRL No.: 207

3. Reference:

Statement of Work (Attachment A of the contract), Para. 1, 2, 3
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)
Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

For review of tests and test results obtained for engineering tests performed on the instrument or instrument subsystems.

5. Related Documents:

CDRL #016, 020-021, 026, 028-029, 032, 104, 106-107, 206, 208, 217, 220, 407, 409, 411-412
EOS General Interface Requirements Document (422-11-12-01 Rev. A)
ATN-KLM General Instrument Interface Specification (IS-3267415)
Unique Instrument Interface Specification for the AMSU-A1 (IS-2617547)
Unique Interface Specification for the AMSU-A2 (IS-2624483)

6. Preparation Information:

These reports shall identify, as a minimum, the test requirements, test limits, test fixtures environment, test equipment, test results, and any failures and corrective actions.

These shall be prepared in accordance with the PAR (S-480-79).

These shall be submitted in accordance with Part B (2XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: PERFORMANCE VERIFICATION REPORTS

2. CDRL No.: 208

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provide summary of integration and testing results, conformance, non-conformance, and trend data.

5. Related Documents:

CDRL #022, 028, 032, 104, 106-109, 111, 207, 215, 308, 412
EOS General Interface Requirements Document (422-11-12-01 Rev. A)
ATN-KLM General Instrument Interface Specification (IS-3267415)
Unique Instrument Interface Specification for the AMSU-A1 (IS-2617547)
Unique Interface Specification for the AMSU-A2 (IS-2624483)

6. Preparation Information:

Integration and test reports are required for all such activities commencing at component level testing for each mission. Contents of these reports shall include, as a minimum:

a. Summary of the test results of each activity and an assessment of the quality and acceptability of the item tested

b. Summary of the non-conformance occurring during the test and their resolution and corrective actions taken

c. Trends in the performance of critical components (CDRL #215)

d. Actual sequence of these operations including dates and times

e. For thermal testing, tabulation of test target temperatures and actual test temperatures for all equipment and components

f. For thermal balance testing, a tabulation of test prediction and actual temperatures and a tabulation of other pertinent targeted parameters vs. their actual test values, such as heater powers, heater place temperatures, solar intensity, etc.

These shall be prepared in accordance with the PAR (S-480-79).

These shall be submitted in accordance with Part B (2XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: MALFUNCTION/FAILURE REPORTS

2. CDRL No.: 209

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provides reporting, monitoring, and closure of all malfunctions and failures and their corrective actions for the AMSU-A instrument.

5. Related Documents:

CDRL #028-029, 032, 204, 210-214

6. Preparation Information:

These reports shall provide immediate notification by telecon and fax to both the AMSU-A Technical Officer and Flight Assurance Manager of a malfunction or failure.

These reports provide all information required to adequately identify and track subsequent actions relative to any failure or malfunction. Each iteration shall contain the items of information listed on GSFC Form 4-2 or approved alternate as pertinent to the update iteration being submitted.

Submittal of the data in approved computer readable form shall be in monthly composite updates of all currently open malfunction reports (with each data item separately identified to its respective MR). When each MR is closed, the next monthly computer composite shall carry the closure update of all Form 4-2 data on that MR.

Malfunction/failure reports shall be submitted to the GSFC at the time of occurrence, at the completion of analysis and assignment of corrective action, and at closure.

Malfunction/failure reports submitted to the GSFC for closure shall include a copy of all referenced data and shall have had all corrective actions accomplished and verified.

Documentation requirements for report close-outs are defined in CDRL #210.

These shall be prepared in accordance with the PAR (S-480-79).

These shall be submitted in accordance with Part B (2XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: MRB DECISIONS ON NON-CONFORMANCE

2. CDRL No.: 210

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provides information to GSFC relative to contractor MRB actions taken with regards to nonconforming material.

5. Related Documents:

CDRL #032, 209, 211

6. Preparation Information:

Prepare in contractor's format in accordance with the guidelines in the PAR (S-480-79). Provide sufficient detail and supporting material to back up the MRB decisions.

Decisions resulting in recommendations for "repair" or "use as-is" shall require additional documentation.

Submit in accordance with Part B (2XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: PROBLEM AND FAILURE REPORT CLOSE-OUT

2. CDRL No.: 211

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provides all data required for contractor and GSFC approval for close out of malfunction/failure reports.

5. Related Documents:

CDRL #029, 032, 204, 209-210

6. Preparation Information:

Provide signed close out of each report form generated under the requirements of CDRL #209. Attach all supportive documentation relative to the close out.

This shall be prepared in accordance with the PAR (S-480-79).

This shall be submitted in accordance with Part B (2XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: ALERTS

2. CDRL No.: 212

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provides for the preparation of Alerts on problems within the scope of the GIDEP system.

5. Related Documents:

CDRL #032, 204, 209-210, 213

6. Preparation Information:

The contractor shall prepare Alerts in accordance with the PAR (S-480-79) on DD Form 1938 through block 15.

If a GIDEP member, the contractor shall transmit the Alert to GIDEP with an additional copy transmitted to GSFC. If the contractor is not a participant in GIDEP, the contractor shall submit the completed form and supporting data to GSFC for transmittal to GIDEP.

The original report shall be submitted in accordance with Part B (2XX Series) of this document.

In any case, an information copy shall be submitted to:

Alert Coordinator
Code 311
Goddard Space Flight Center
Greenbelt, MD 20771

Status summaries of each Alert received within a 30 day period shall be submitted as part of the Monthly Progress Report in accordance with Part B (2XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: RESPONSES TO ALERTS

2. CDRL No.: 213

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

To inform GSFC of the extent of impact of all reported GIDEP Alerts on the contract hardware so that the Project can plan appropriate corrective actions.

5. Related Documents:

CDRL #032, 204, 209, 212, 214

6. Preparation Information:

These responses to GSFC on the GIDEP Alerts shall be prepared in accordance with the PAR (S-480-79) and shall be reported within time intervals requested by GSFC as they impact the project hardware.

Initial responses shall be updated as any Alert report is updated by GIDEP.

These responses to GSFC on the GIDEP Alerts shall be submitted in accordance with Part B (2XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: RESPONSES TO NASA PROBLEM NOTICES

2. CDRL No.: 214

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

To inform GSFC of the extent of impact on the contract hardware of any special problem notices sent by NASA so that the Project can plan appropriate corrective actions.

5. Related Documents:

CDRL #032, 204, 209, 212-213

6. Preparation Information:

These responses to NASA Problem Notices shall be prepared in accordance with the PAR (S-480-79).

These responses to NASA Problem Notices shall be submitted in accordance with Part B (2XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

TREND ANALYSIS REPORTS (MONITORING OF SELECTED PARAMETERS)

2. CDRL No.:

215

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provides tracking of critical engineering and performance parameters for the AMSU-A instrument.

5. Related Documents:

CDRL #014, 016, 020, 111, 216, 226, 526
EOS General Interface Requirements Document (422-11-12-01 Rev. A)
ATN-KLM General Instrument Interface Specification (IS-3267415)
Unique Instrument Interface Specification for the AMSU-A1 (IS-2617547)
Unique Interface Specification for the AMSU-A2 (IS-2624483)

6. Preparation Information:

A list of parameters to be monitored for trends, updates to the list, and trend reports shall be prepared by the contractor in accordance with the PAR (S-480-79).

In addition, for each mission, a log shall be maintained for each instrument of the accumulated operating time. The log shall include the following information, as a minimum:

a. Identification of hardware item

b. Serial number

c. Total operating time since assembly as a unit

d. Total operating time since last failure

e. Total additional operating time projected for the unit prior to launch

f. Identification of key parameters being monitored

g. Upper/lower spec tolerance limit for each parameter being monitored

h. Summary statement of any trending noted in earlier measurements of each parameter

i. Observed value (in sequence) for the reporting interval

j. Assessment of trends to date

These reports shall be submitted in accordance with Part B (2XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: HAZARD CONTROL VERIFICATION REPORT

2. CDRL No.: 216

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provides status/results of hazard verification activities, including test results, analysis and inspections.

5. Related Documents:

CDRL #007, 014, 016, 020, 022, 032, 104, 106-112, 204, 207-208, 215, 412

6. Preparation Information:

Reports are required to verify that all hazards are adequately controlled. Contents of these reports shall include, as a minimum:

a. Summary of the results of each activity and an assessment of the quality and acceptability of the item tested, analyzed and/or inspected

b. Summary of the non-conformance occurring during the evaluation and their resolution and corrective actions taken

c. Trends in the performance of critical components

d. Actual sequence of test operations including dates and times

This shall be prepared in accordance with the PAR (S-480-79).

This shall be submitted in accordance with Part B (2XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: EOS SOFTWARE TEST REPORTS

2. CDRL No.: 217

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)
EOS PM Project Software Management Plan (422-10-04), Para. 4.3.1, Table 4-1

4. Use:

Provide summary of the software acceptance testing and/or retesting activities.

5. Related Documents:

CDRL #008, 021-022, 026, 028, 032-033, 207, 415

6. Preparation Information:

These reports shall be prepared in accordance with NASA-DID-R009, "Minimum Contents for Test Report ", EOS PM Project Software Management Plan (422-10-04) and PAR (S-480-79).

These reports shall be developed for each test described in the EOS Software Test Plan (CDRL #033) and shall include the following, as a minimum:

a. Identity and number of planned tests that have been completed

b. Conformance of test results to expected results

c. Number, type, and criticality of discrepancies

d. Identification of software areas tested

e. Analysis of any performance requirements that the tested software could affect

f. Test result summary

The actual test results shall either be attached to the report(s) or maintained on-site.

These reports shall be submitted in accordance with Part B (2XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

DATA ON NON-CONVENTIONAL APPLICATION OF MATERIALS

2. CDRL No.:

218

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provide data on non-conventional material usage, proposed for use on AMSU-A, for GSFC review and approval.

5. Related Documents:

CDRL #202, 505-506

6. Preparation Information:

The contractor is allowed to utilize his own reporting system in accordance with the PAR (S-480-79). The contractor shall provide all information requested by the GSFC and shall receive approval from the Contracting Officer.

Sufficient data shall be submitted to show that the material under consideration has been verified for the desired application on the basis of similarity, analysis, test, inspection, existing data, or a combination of these methods.

This data shall be submitted in accordance with Part B (2XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

INSTRUMENT OUTPUT DATA RECORDS OBTAINED DURING GROUND TESTING

2. CDRL No.:

219

3. Reference:

Statement of Work (Attachment A of the contract), Para. 2
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)

4. Use:

To provide a history record of instrument performance.

5. Related Documents:

CDRL #032, 207

6. Preparation Information:

Whenever the instrument is operated from the System Test Equipment (STE) or Bench Check Unit (BCU) the contractor shall generate a digital history record, which will be stored on some form of mutually agreed upon media and shall contain all AMSU-A output data plus all ancillary data necessary for the use of the instrument data. All media shall be provided by the contractor.

The contractor shall provide copies of selected portions of the recorded data as requested by the Technical Officer. This shall include all or part of the calibration data plus other selected acceptance test data. These records shall be identified by date, test particulars and location on the storage media.

These records shall be submitted in accordance with Part B (2XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: | CDRL No.:

OTHER TECHNICAL REPORTS AND REISSUED REPORTS | 220

3. Reference:

Statement of Work (Attachment A of the contract), Para. 2
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)
Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

To review other technical reports and reissued reports.

5. Related Documents:

CDRL #021, 028, 032, 101-104, 206-207

6. Preparation Information:

These are miscellaneous reports prepared or reissued for the AMSU-A instrument program.

These shall be prepared in accordance the PAR (S-480-79).

These shall be submitted in accordance with Part B (2XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: DELETED (Mod 25)

2. CDRL No: 221

3. Reference:

4. Use:

5. Related Documents:

6. Preparation Information:

DESCRIPTION OF REQUIRED DATA

1. Title:

SPECIFICATION COMPLIANCE AND CALIBRATION DATA BOOKS

2. CDRL No.:

222

3. Reference:

Statement of Work (Attachment A of the contract), Para. 2, 3
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)

4. Use:

For demonstrating specification compliance and for full interpretation of the orbital data.

5. Related Documents:

CDRL #018, 032, 101, 104, 207, 220
EOS Calibration Management Plan (420-03-01)

6. Preparation Information:

These data books, which are to be delivered at the end of EM tests and as part of each Pre-Ship Review (PSR) Data Package, are to be a record of all pertinent test and calibration data, including all raw data from which graphs, curves, etc., are prepared, which will be used as an aid in determining the flight worthiness of the instrument.

A summary section shall be prepared for each record book which contains functional equations and charts pertinent to the data contained therein. The set of summaries shall depict, as a minimum, all information pertinent to the performance requirements, the final system level bench test data, the final calibration of the instrument and every instrument subsystem as determined from all tests and calibrations performed prior to delivery of the instrument to the Government, and a set of trend charts of all critical parameters.

These books shall be submitted in accordance with Part B (2XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: NEW TECHNOLOGY REPORTS

2. CDRL No.: 223

3. Reference:

Contract Clause G7

4. Use:

Provides for reporting new technology to the Government in accordance with provisions and the requirements set forth in the contract schedule articles and clauses for new technology.

5. Related Documents:

None

6. Preparation Information:

Prepare in accordance with FAR 18-52.235-72 "Plan for New Technology Reporting" December 1984.

These reports shall be submitted in accordance with Part B (2XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: SAFETY COMPLIANCE DATA PACKAGE

2. CDRL No.: 224

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provides data in conjunction with risk assessment. Provides evidence to the launch facility organization of the safety readiness of the observatory (including Instruments) for processing and launch.

5. Related Documents:

CDRL #016, 032, 526
EOS General Interface Requirements Document (422-11-12-01 Rev. A)
ATN-KLM General Instrument Interface Specification (IS-3267415)
Unique Instrument Interface Specification for the AMSU-A1 (IS-2617547)
Unique Interface Specification for the AMSU-A2 (IS-2624483)

6. Preparation Information:

This package shall be prepared in accordance with the PAR (S-480-79).

This package shall be submitted in accordance with Part B (2XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: RESPONSES TO FORMAL ACTIONS

2. CDRL No.: 225

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)
METSAT Project Configuration Management Plan (S-480-17A)
EOS PM Project Software Management Plan (422-10-04), Para. 4.1, Table 4-1

4. Use:

Provides input to formal responses prepared by the Project.

5. Related Documents:

CDRL #014, 016-017, 019-021, 026, 028-029, 032

6. Preparation Information:

Preliminary responses may be in any form, such as fax or telecon, to promote coordination with the Project. Any final responses required by the Project shall be typed and shall include reproducible copies of any supportive material, such as:

a. Engineering reports

b. Sketches

c. Drawing changes

d. Documentation narrative changes

e. Test reports, graphs, etc.

These shall be prepared in accordance with the PAR (S-480-79) and shall be submitted in accordance with Part B (2XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

EOS FINAL REPORT - DESIGN THROUGH FLIGHT EVALUATION

2. CDRL No.:

226

3. Reference:

Statement of Work (Attachment A of the contract), Para. 1

4. Use:

To provide an understanding of the instrument and its performance.

5. Related Documents:

CDRL #104, 215, 303, 305, 526

6. Preparation Information:

This report shall provide a system and subsystem description with illustrations and block diagrams. No wiring diagrams or schematics are required. Test information, channel sensitivity and calibration, and flight performance evaluation shall be included. The report shall be a self-contained document in that a reader not familiar with the instrument can obtain a reasonably complete understanding of the instrument without recourse to another document or drawing. The report shall be prepared in accordance with S-250-P-1C (Type III). A draft copy shall be submitted for approval to the Technical Officer before printing.

The contractor shall deliver reproducible copy (copies) including glossy prints and negatives of each illustration, to the following:

National Aeronautics and Space Administration
Goddard Space Flight Center
Greenbelt, MD 20771
ATTN: Graphic Arts Branch/Code 253

This report shall be submitted in accordance with Part B (2XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

SPECIFICATION ON PARTS, MATERIALS, SUBASSEMBLIES/SUBSYSTEMS UPDATE

2. CDRL No.:

301

3. Reference:

Statement of Work (Attachment A of the contract), Para. 2, 3
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)
METSAT Project Configuration Management Plan (S-480-17A)
Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Identification and detail of requirements.

5. Related Documents:

CDRL #016, 032, 505-506, 524-527
EOS General Interface Requirements Document (422-11-12-01 Rev. A)
ATN-KLM General Instrument Interface Specification (IS-3267415)
Unique Instrument Interface Specification for the AMSU-A1 (IS-2617547)
Unique Interface Specification for the AMSU-A2 (IS-2624483)

6. Preparation Information:

Specification requirements for parts and materials are identified in the PAR (S-480-79).

Specification for subassemblies and subsystems shall address the usage and overall requirements; reference applicable documents; identify specific requirements in all technical areas; identify all interfaces, test and calibration requirements, handling, and environmental requirements.

This shall be submitted in accordance with Part B (3XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: 2. CDRL No.:

INSTRUMENT FUNCTIONAL LOGIC DIAGRAMS 302

3. Reference:

Statement of Work (Attachment A of the contract), Para. 2
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)

4. Use:

For definition in logic symbology of function, operation, and control of the instrument electronics including the ground support STE and BCU. For METSAT, update METSAT AMSU-A diagram.

5. Related Documents:

CDRL #016, 020, 032, 509, 515-516, 518-519

6. Preparation Information:

These logic diagrams shall cover the system, subsystem and component electronics and shall identify the signal inputs and outputs, internal signal flow, and the next level external connections.

These diagrams shall be submitted in accordance with Part B (3XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

COMMAND LIST AND DESCRIPTION

2. CDRL No.:

303

3. Reference:

Statement of Work (Attachment A of the contract), Para. 3
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)

4. Use:

For determining the commands required for instrument operation.

5. Related Documents:

CDRL #016-017, 021, 026, 028, 032, 306, 309, 404-405, 409-411, 519

6. Preparation Information:

This shall contain a complete list of instrument commands for all instrument modes of operation and sequence testing with a description of their effects, and it identifies any critical commands which may damage the instrument in certain situations.

This shall be submitted in accordance with Part B (3XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

ENGINEERING DRAWINGS FOR MATERIALS APPLICATIONS

2. CDRL No.:

304

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provides design data on materials application as required for GSFC review and understanding.

5. Related Documents:

CDRL #506

6. Preparation Information:

Provide engineering drawings as requested by the Project Office to support review of materials application for use on AMSU-A.

These drawings shall be submitted in accordance with Part B (3XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: EOS ENGINEERING TELEMETRY DESCRIPTION

2. CDRL No.: 305

3. Reference:

Statement of Work (Attachment A of the contract), Para. 3
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)

4. Use:

Definition of all instrument telemetry data.

5. Related Documents:

CDRL #016, 020, 032, 226, 303, 404, 409, 519, 526

6. Preparation Information:

This shall contain a complete list of engineering telemetry data coming from the instrument, including engineering telemetry calibrations, the levels or responses expected in response to commands, and levels which require alerts or immediate actions.

This shall be submitted in accordance with Part B (3XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

EOS SOFTWARE PRODUCT SPECIFICATIONS

2. CDRL No.:

306

3. Reference:

EOS PM Project Software Management Plan (422-10-04), Para. 4.1, Table 4-1

4. Use:

Provides data and information to aid in software analysis and debugging and software operations and maintenance. Defines software design and interface requirements.

5. Related Documents:

CDRL #008, 017, 021, 026, 028, 032-033, 303, 309, 402, 415

6. Preparation Information:

Prepare in accordance with the requirements defined in NASA-DID-P000 "Product Specification", and the EOS PM Project Software Management Requirements (422-10-04).

These specifications shall include, as a minimum:

a. Software Concept Document (NASA-DID-P100)

b. Software Requirements (NASA-DID-P200)

c. Software External Interface Requirements Document (NASA-DID-P200, "Requirements", Sec. 4). This shall be developed and delivered as a part of the Software Requirements document (CDRL #306b).

d. Software Architectural Design (NASA-DID-P300)

e. Software Detailed Design Document (NASA-DID-P400)

f. Software External Interface Design Document (NASA-DID-P300, "Architectural Design" Sec. 5). This shall be developed and delivered as a part of the Software Architectural Design document (CDRL #306d).

g. Firmware Support Manual (NASA-DID-P410)

h. Software Version Description (NASA-DID-P500)

i. Operations Procedure Manual (NASA-DID-P700)

j. User's Guide (NASA-DID-P600)

k. Software Maintenance Manual (NASA-DID-P000, "Product Specification", Sec. 10). This shall be developed and delivered as a part of the Software Product Specification (CDRL #306).

These shall be submitted in accordance with Part B (3XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: OPERATION AND MAINTENANCE MANUALS

2. CDRL No.: 307

3. Reference:

Statement of Work (Attachment A of the contract), Para. 2, 3
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)

4. Use:

For operating and servicing AMSU-A and GSE.

5. Related Documents:

CDRL #029, 032, 219, 222, 302-303, 407, 409-412, 516
EOS General Interface Requirements Document (422-11-12-01 Rev. A)
ATN-KLM General Instrument Interface Specification (IS-3267415)
Unique Instrument Interface Specification for the AMSU-A1 (IS-2617547)
Unique Interface Specification for the AMSU-A2 (IS-2624483)

6. Preparation Information:

Operation and maintenance manuals shall be prepared for the Engineering Model and for all GSE. As a minimum these manuals shall contain the system and subsystem description, function and operation, block diagrams and circuitry description, operation and test procedures, maintenance, and performance data. These manuals, in conjunction with the Drawing Books, shall provide all the information needed for operating and servicing the AMSU-A and GSE. These manuals shall be updated during the program to reflect any changes, including differences between the Engineering Model, the Protoflight Model, and the Flight Model(s). Five copies of these manuals shall be provided for the Engineering Model, Protoflight Model and each Flight Model.

These manuals shall be submitted in accordance with Part B (3XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: PERFORMANCE VERIFICATION SPECIFICATION

2. CDRL No.: 308

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provides technical requirements and approach for demonstrating that each hardware item complies with its performance requirements.

5. Related Documents:

CDRL #007, 020, 022, 107-109, 208, 406, 412
EOS General Interface Requirements Document (422-11-12-01 Rev. A)
AMSU-A Interface Control Document (ICD)
ATN-KLM General Instrument Interface Specification (IS-3267415)
Unique Instrument Interface Specification for the AMSU-A1 (IS-2617547)
Unique Interface Specification for the AMSU-A2 (IS-2624483)

6. Preparation Information:

This specification shall incorporate the requirements of PAR (S-480-79). For AMSU-A, its components and assemblies, the specifications shall be compatible with, and inclusive of, all elements of the matrices required in CDRL #022, "Performance Verification Plan."

The specifications should clearly indicate the relationship to hardware maturity, such as qualification and acceptance. For multiple, identical items, indicate the specifications that apply to each.

This specification shall include, as a minimum:

a. Environmental test specification requirements
   - Standard conditions for all test areas (temperature, humidity, cleanliness)
   - Qualification and acceptance test temperatures (including uncertainties)

- Shock test requirements
- Radiation levels
- Acoustic excitation levels
- Qualification and acceptance vibration test levels
- Electromagnetic test levels

b. Thermal and thermal vacuum test profiles for all components and subsystems

c. Instrument-level thermal balance and thermal test profiles

d. Estimated test run time for each event

e. Performance parameter accept/reject criteria

f. Measurement tolerances for weight, center-of-gravity and moments-of-inertia

This shall be submitted in accordance with Part B (3XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: 2. CDRL No.:

EOS SOFTWARE ASSURANCE SPECIFICATIONS 309

3. Reference:

EOS PM Project Software Management Plan (422-10-04), Para. 4.1, Table 4-1

4. Use:

Provide details for the AMSU-A assurance and build test programs.

5. Related Documents:

CDRL #008, 017, 021, 026, 028, 032-033, 303, 306, 402, 415

6. Preparation Information:

These shall be prepared in accordance with NASA-DID-M400, "Assurance Plan" as defined in the EOS PM Project Software Management Plan (422-10-04).

These shall be submitted in accordance with Part B (3XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

STANDARD PRACTICES AND PROCEDURES UPDATE

2. CDRL No.:

401

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Supply additional detail for GSFC review in evaluating the contractor's system for product assurance.

5. Related Documents:

CDRL #402, 502

6. Preparation Information:

This shall be prepared in accordance with the PAR (S-480-79).

This shall be submitted in accordance with Part B (4XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

EOS SOFTWARE STANDARDS AND PROCEDURES

2. CDRL No.:

402

3. Reference:

EOS PM Project Software Management Plan (422-10-04), Para. 4.2, Table 4-1

4. Use:

Supply additional information regarding new standards that have been developed per the software management plan.

5. Related Documents:

CDRL #008, 033, 306, 309, 401, 415

6. Preparation Information:

These shall be prepared in accordance with NASA-DID-M200, "Development Plan", section 3.1b "Development Engineering Standards" and the EOS PM Project Software Management Plan (422-10-04).

These shall be submitted in accordance with Part B (4XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

DPA PROCEDURES UPDATE

2. CDRL No.:

403

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provides information relative to actual Destructive Physical Analysis (DPA) of parts prior to implementation.

5. Related Documents:

CDRL #209-211

6. Preparation Information:

These procedures shall be submitted for determination of its acceptability by GSFC if the contractor proposes to use a DPA procedure other than that in S-311-70.

Define the requirements, procedures and rationale for the selected approach to any DPA proposed for parts or components.

These shall be prepared in accordance with the PAR (S-480-79).

These shall be submitted in accordance with Part B (4XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

EOS OPERATIONAL IN-FLIGHT CALIBRATION PROCEDURES

2. CDRL No.:

404

3. Reference:

Statement of Work (Attachment A of the contract), Para. 2
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)

4. Use:

For conducting instrument calibration during in-orbit operation.

5. Related Documents:

CDRL #016, 018-019, 025, 032, 101, 303, 305, 405, 410
EOS Calibration Management Plan (420-03-01)

6. Preparation Information:

These procedures shall describe the equipment, methods, accuracies, and command sequences for in-flight calibration. Fail-safe methods shall be used for conducting in-flight calibration.

These procedures shall be submitted in accordance with Part B (4XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

EOS GENERAL OPERATING COMMAND PROCEDURES

2. CDRL No.:

405

3. Reference:

Statement of Work (Attachment A of the contract), Para. 3
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)

4. Use:

For configuring AMSU-A in its operational modes

5. Related Documents:

CDRL #016, 025, 028, 032, 303, 404, 409, 411, 519

6. Preparation Information:

These procedures shall describe command sequences necessary to configure the instrument in any phase of any operational modes described in the specifications.

These procedures shall be submitted in accordance with Part B (4XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: TRANSPORTATION AND HANDLING PROCEDURES

2. CDRL No.: 406

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provide the instructions and procedures for safe and effective transporting and handling of AMSU-A and associated GSE throughout the mission contract.

5. Related Documents:

CDRL #007, 020, 022, 032, 308, 412
EOS General Interface Requirements Document (422-11-12-01 Rev. A)
ATN-KLM General Instrument Interface Specification (IS-3267415)
Unique Instrument Interface Specification for the AMSU-A1 (IS-2617547)
Unique Interface Specification for the AMSU-A2 (IS-2624483)

6. Preparation Information:

This documentation shall discuss all of the step-by-step procedures for the handling and transporting of AMSU-A, spares, and GSE. The documentation shall include:

a. Nomenclature of all supportive equipment

b. Calibration and load-tested data

c. Identification of special environmental conditions, such as cleanliness, temperature, humidity, etc., and the controls to be implemented to maintain those conditions

d. Format for recording QA stamp, deviations and approval columns

e. Requirements for special tools, equipment, special handling fixture and containers

f. Method of transportation and carrier

g. Procedures to comply with local, state and federal safety requirements

h. Procedures for maintaining contact with the transported item (where applicable

These shall be prepared in accordance with the PAR (S-480-79).

These shall be submitted in accordance with Part B (4XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: STORAGE TESTING PROCEDURES

2. CDRL No.: 407

3. Reference:

Statement of Work (Attachment A of the contract), Para. 2
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)
Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

For defining procedures to be used for instrument storage testing.

5. Related Documents:

CDRL #007, 020, 032, 207, 307, 409
EOS General Interface Requirements Document (422-11-12-01 Rev. A)
ATN-KLM General Instrument Interface Specification (IS-3267415)
Unique Instrument Interface Specification for the AMSU-A1 (IS-2617547)
Unique Interface Specification for the AMSU-A2 (IS-2624483)

6. Preparation Information:

As a minimum, these procedures shall define the objectives, test requirements, test limits, test fixtures and instrumentation, handling procedures, environment, and test recording requirements.

These shall be prepared in accordance with the PAR (S-480-79).

These shall be submitted in accordance with Part B (4XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: DELETED

2. CDRL No.: 408

3. Reference:

4. Use:

5. Related Documents:

6. Preparation Information:

DESCRIPTION OF REQUIRED DATA

1. Title:

DETAILED TEST PROCEDURES

2. CDRL No.:

409

3. Reference:

Statement of Work (Attachment A of the contract), Para. 2
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)

4. Use:

For defining test procedures for establishing Instrument and GSE compliance to AMSU-A specifications.

5. Related Documents:

CDRL #029, 032, 035, 207, 303, 305, 307, 405, 407, 410-411
EOS General Interface Requirements Document (422-11-12-01 Rev. A)
ATN-KLM General Instrument Interface Specification (IS-3267415)
Unique Instrument Interface Specification for the AMSU-A1 (IS-2617547)
Unique Interface Specification for the AMSU-A2 (IS-2624483)

6. Preparation Information:

As a minimum these procedures shall define the objectives, test requirements, test limits, test fixtures and instrumentation, handling procedures, environment, and test recording requirements.

For METSAT, update currently existing test procedures (if needed).

These procedures shall be submitted in accordance with Part B (4XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: DETAILED GROUND CALIBRATION PROCEDURES

2. CDRL No.: 410

3. Reference:

Statement of Work (Attachment A of the contract), Para. 2
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)

4. Use:

For calibrating the instrument performance in air or thermal vacuum.

5. Related Documents:

CDRL #018-019, 032, 101, 303, 307, 404, 409
EOS Calibration Management Plan (420-03-01), Para. 3

6. Preparation Information:

As a minimum these procedures shall define the objectives, test requirements and test limits, fixtures and test targets, source signal level and FOV requirements, optical interface requirements, and data recording and analysis requirements.

These procedures shall be submitted in accordance with Part B (4XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: GSE TEST PROCEDURES

2. CDRL No.: 411

3. Reference:

Statement of Work (Attachment A of the contract), Para. 2
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)

4. Use:

For testing the capability of the GSE to meet AMSU-A testing requirements. For METSAT, update currently existing test procedures (if needed).

5. Related Documents:

CDRL #029, 032, 207, 307, 405, 409
EOS General Interface Requirements Document (422-11-12-01 Rev. A)
ATN-KLM General Instrument Interface Specification (IS-3267415)
Unique Instrument Interface Specification for the AMSU-A1 (IS-2617547)
Unique Interface Specification for the AMSU-A2 (IS-2624483)

6. Preparation Information:

As a minimum, these procedures shall define the test requirements and test limits, the required performance and stability of measuring instrumentation, the instrumentation to be used, the procedure for determining suitability of thermal vacuum facilities, and signal source stability, and the required performance of data recorders.

These shall be submitted in accordance with Part B (4XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

EOS PERFORMANCE VERIFICATION PROCEDURES FOR SPACECRAFT

2. CDRL No.:

412

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provide detailed procedures required to integrate AMSU-A into the observatory for each mission. Provide detailed procedures required to perform S/C system and laboratory tests.

5. Related Documents:

CDRL #007, 022, 032, 035, 108-109, 207-208, 216, 307-308, 406
EOS General Interface Requirements Document (422-11-12-01 Rev. A)

6. Preparation Information:

These shall be prepared in accordance with the PAR (S-480-79) and shall include, as a minimum:

a. Nomenclature and identification of the test article. Identification of test configuration and any differences from flight configuration

b. Identification of objectives and criteria established for test by the applicable verification plan or specification. Where tests are run by computer program, the applicable test specification and computer program subroutine number must be identified

c. Characteristics and design criteria to be inspected or tested, including values for acceptance and rejection, with actual date recorded

d. Layout and interconnection of test equipment and articles including the grounding scheme. Location and identification of all measuring points on appropriate schematics and diagrams

e. Description of integration tests planned for each subsystem, instrument and interrelationship verification testing

f. Planned use of GSE, breakout boxes, simulators, etc.

g. Hazardous situations and operations and abort conditions

h. Environmental and/or other conditions to be maintained, including contamination controls

i. Environmental levels and tolerances

j. Responsibilities and chain-of-command for test performance

k. A tabulation of (1) all test target temperatures for all equipment in thermal vacuum, and (2) all predicted test temperatures for all equipment in thermal balance

These procedures shall be submitted in accordance with Part B (4XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: ASSEMBLY PROCEDURES

2. CDRL No.: 413

3. Reference:

Statement of Work (Attachment A of the contract), Para. 2
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)

4. Use:

Provides methods to be used for assembling subsystems or the entire AMSU-A instrument. For METSAT, updates currently existing procedures (if needed).

5. Related Documents:

CDRL #020, 032, 414, 509, 519, 522

6. Preparation Information:

As a minimum, these procedures shall provide a top assembly view and an "exploded view" of how the subsystem or subsystem components are assembled to the next level; identify test measurements to be made and recorded at different assembly levels, handling and environment requirements, and photographic recording.

These shall be submitted in accordance with Part B (4XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: STANDARD REPAIR PROCEDURES

2. CDRL No.: 414

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

To provide information regarding repairs for MRB review and approval.

5. Related Documents:

CDRL #032, 035, 413, 510

6. Preparation Information:

These shall be developed in accordance with the PAR (S-480-79).

These shall be submitted in accordance with Part B (4XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: EOS SOFTWARE TEST PROCEDURES

2. CDRL No.: 415

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

To define the software test procedures.

5. Related Documents:

CDRL #008, 017, 021-022, 217, 306, 309, 402

6. Preparation Information:

These software test procedures shall be prepared that implement the software test plans required in accordance with the PAR (S-480-79). These software test procedures shall be prepared in accordance with NASA-DID-A200, "Test Procedures".

These shall be submitted in accordance with Part B (4XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: AUDIT PROGRAM DESCRIPTION

2. CDRL No.: 501

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Evaluation of contractor and subcontractor compliance with all provisions of the PAR and the provisions of the procurement documents.

5. Related Documents:

CDRL #001, 204-205

6. Preparation Information:

The contractor's schedule and conduct of the audits shall be based on the following:

a. Criticality of items being procured, or those items identified by failure mode, effects, and criticality analyses, or information from trend analyses

b. Known problems or difficulties

c. Supplier quality history

d. Remaining period of supplier performance

The audit program for the contractor, subcontractors, and suppliers shall be prepared in accordance with the PAR (S-480-79).

Each audit shall include examination of operations and documents as well as examinations of articles and materials.

This shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: DEVELOPER DERATING POLICY UPDATE

2. CDRL No.: 502

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provides information relative to the contractor's policy for the derating of parts prior to implementation.

5. Related Documents:

CDRL #003-004, 401

6. Preparation Information:

Define the derating requirements, procedures and rationale for parts or components.

This shall be prepared in accordance with the PAR (S-480-79).

This shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: WEIGHT AND POWER BUDGETS

2. CDRL No.: 503

3. Reference:

Statement of Work (Attachment A of the contract), Para. 2
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)

4. Use:

For tracking instrument weight and power requirements.

5. Related Documents:

CDRL #016, 029, 032, 206-207, 220
Unique Instrument Interface Specification for the AMSU-A1 (IS-2617547)
Unique Interface Specification for the AMSU-A2 (IS-2624483)

6. Preparation Information:

Information to be provided shall differentiate between calculated, estimated, or actual values for both weight and power. The values to be presented shall be at least to the major component level of the subsystems, e.g., mechanism, power supplies, heaters, cabling, etc. The accuracy of the values presented shall be identified.

These shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: LIMITED LIFE ITEMS LIST

2. CDRL No.: 504

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provides data on limited life items or items subject to degradation with age used on AMSU-A for GSFC to review and approve acceptability for implementation and for flight.

5. Related Documents:

CDRL #016, 020, 526

6. Preparation Information:

Prepare the list and related information for each mission in accordance with the PAR (S-480-79).

The list shall include the expected life and the rationale for the selection of each item.

The list shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: NON-STANDARD PARTS DATA PACKAGE

2. CDRL No.: 505

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provides data for non-standard part selection for GSFC review leading to approval or disapproval.

5. Related Documents:

CDRL #202, 204, 218, 301, 526-527

6. Preparation Information:

Complete a separate Non-Standard Part Approval Request (NSPAR) for each non-standard part type proposed for use on AMSU-A. Submit this data on Form GSFC 4-15 in accordance with the instructions on the back of the form.

This shall be prepared in accordance with the PAR (S-480-79).

This shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

MATERIALS LIST, LUBRICATION LIST, AND PROCESSES LIST UPDATE

2. CDRL No.:

506

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provides data on materials, lubricants and processes for review and approval by GSFC.

5. Related Documents:

CDRL #016, 020, 202, 218, 301, 304, 526-527

6. Preparation Information:

The following lists may be in the contractor's format. They shall include all of the information required by both sides of the GSFC form identified with each list.

a. Inorganic Materials List, GSFC Form 18-59A

b. Polymeric Materials List, GSFC Form 18-59B

c. Lubrication List, GSFC Form 18-59C

d. Materials Processes List, GSFC Form 18-59D

These shall be prepared in accordance with the PAR (S-480-79).

These shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

CRITICAL ITEMS LIST (CIL)

2. CDRL No.:

507

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provides information relative to failure modes that present potential catastrophic or critical effects on the mission as well as information on EEE parts applications that fail to meet the derating criteria.

5. Related Documents:

CDRL #016, 020, 108, 526

6. Preparation Information:

This shall be prepared in accordance with the PAR (S-480-79) and shall include, as a minimum:

a. Potential catastrophic failures that can't be eliminated from the system

b. All potential critical/major failures

c. All part applications that don't conform with derating policy

d. Justification for retention of each item listed

This shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

EOS ACQUISITION ACTIVITIES PLAN

2. CDRL No.:

508

3. Reference:

EOS PM Project Software Management Plan (422-10-04), Para. 4.1, Table 4-1

4. Use:

Defines contractor activities required to acquire necessary components and to specify management and assurance requirements.

5. Related Documents:

CDRL #008, 017, 021

6. Preparation Information:

This shall be prepared in accordance with NASA-DID-M100, "Acquisition Activities Plan," and the EOS PM Project Software Management Plan (422-10-04).

This shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

APPROVED OR CONTROLLED DRAWINGS

2. CDRL No.:

509

3. Reference:

Statement of Work (Attachment A of the contract), Para. 3
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)
METSAT Project Configuration Management Plan (S-480-17A)

4. Use:

For evaluating and record keeping of AMSU-A development.

5. Related Documents:

CDRL #016, 020, 032, 302, 413, 515-516, 518-519
EOS General Interface Requirements Document (422-11-12-01 Rev. A)
ATN-KLM General Instrument Interface Specification (IS-3267415)
Unique Instrument Interface Specification for the AMSU-A1 (IS-2617547)
Unique Interface Specification for the AMSU-A2 (IS-2624483)

6. Preparation Information:

As a minimum, this information shall consist of all drawings approved by the Contractor Program Manager and drawings that are under configuration control.

These drawings shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

MATERIAL REVIEW BOARD WAIVER/DEVIATION REQUESTS

2. CDRL No.:

510

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)
METSAT Project Configuration Management Plan (S-480-17A)

4. Use:

Provides for the submission of waiver/deviation requests to GSFC for any repair or use-as-is recommendations that will adversely affect the safety, reliability, durability, performance, interchangeability, weight, etc. of the hardware.

5. Related Documents:

CDRL #005, 016, 203, 210, 511-512

6. Preparation Information:

These shall be prepared in accordance with the PAR (S-480-79).

Submit waiver and deviation requests to the Project in accordance with the Configuration Management Plan (S-480-17A) and Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: SAFETY WAIVER REQUESTS

2. CDRL No.: 511

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Initiate formal request for customer acceptance of safety risks that have not been or cannot be eliminated.

5. Related Documents:

CDRL #005, 016, 203, 210, 510

6. Preparation Information:

These shall be prepared in accordance with the PAR (S-480-79) and shall include, as a minimum:

a. Requirement that can't be met

b. Reason it can't be met

c. Proposed method for controlling the additional risk

d. Residual risk after application of the additional controls

Each waiver request shall address only one hazard.

These shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

CONFIGURATION CHANGE REQUESTS (CCR)
CLASS I

2. CDRL No.:

512

3. Reference:

METSAT Project Configuration Management Plan (S-480-17A)
EOS PM Project Software Management Plan (422-10-04), Para. 4.1, Table 4-1

4. Use:

Class I changes are to be used as a vehicle for orderly processing of change requests to appropriate level of approval authority for disposition. Class II changes are to be used as a vehicle for processing of all change requests not classified as Class I to appropriate levels for concurrence.

5. Related Documents:

CDRL #005, 108, 110, 203, 510

6. Preparation Information:

Consistent with the Configuration Management Plan (CMP), the contractor shall prepare Class I Change Requests for all changes that may impact form, fit, function, cost, schedules or performance. These changes shall be processed according to the procedures outlined in the CMP and shall be reviewed and approved by appropriate levels of the Configuration Control Board.

These shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: DELETED

2. CDRL No.: 513

3. Reference:

4. Use:

5. Related Documents:

6. Preparation Information:

DESCRIPTION OF REQUIRED DATA

1. Title:

EOS SOFTWARE DISCREPANCY REPORTS

2. CDRL No.:

514

3. Reference:

EOS PM Project Software Management Plan (422-10-04), Para. 4.1, Table 4-1

4. Use:

Indicates discrepancy to either a software or firmware product with regards to the applicable requirements, standards, or procedures.

5. Related Documents:

CDRL #008, 021, 026, 028, 209, 212

6. Preparation Information:

Develop in accordance with the requirements defined in NASA-DID-M600, "Configuration Management Plan", and the EOS PM Project Software Management Plan (422-10-04). These shall be prepared in accordance with NASA-DID-R004, "Discrepancy (NRCA) Report".

These shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

DRAWING TREE

2. CDRL No.:

515

3. Reference:

Statement of Work (Attachment A of the contract), Para. 3
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)
METSAT Project Configuration Management Plan (S-480-17A)

4. Use:

For ready reference list of all AMSU-A instrument and GSE drawings.

5. Related Documents:

CDRL #016, 020, 032, 301-302, 509, 516, 518-519

6. Preparation Information:

The drawing tree is a list of all drawings for the AMSU-A instrument and GSE. The instrument and GSE shall have separate drawing trees. The drawing trees shall be organized and identified to serve as a ready reference list. The drawings shall be identified by name and number.

This shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: 2. CDRL No.:

INSTRUMENT INTERFACE CONTROL DOCUMENT 516

3. Reference:

Statement of Work (Attachment A of the contract), Para. 2
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)

4. Use:

For controlling the interface between the instrument and spacecraft.

5. Related Documents:

CDRL #016, 020, 032, 302, 307, 509, 515, 518-519
EOS General Interface Requirements Document (422-11-12-01 Rev. A)
ATN-KLM General Instrument Interface Specification (IS-3267415)
Unique Instrument Interface Specification for the AMSU-A1 (IS-2617547)
Unique Interface Specification for the AMSU-A2 (IS-2624483)

6. Preparation Information:

This document shall identify the detailed instrument to spacecraft interface in all technical areas, e.g., thermal, mechanical, structural, view factors, etc. The electrical interface shall define both sides of the interface.

This document is a significantly more detailed version of the Unique Instrument Interface Document (UIID) in which summary level allocations for interfaces are contained. This UIID is a document subject to configuration control by the AMSU-A contractor and the Project. The UIID and UIISs will be provided to the AMSU-A contractor by GSFC.

The ICD shall be prepared by the spacecraft contractor after negotiations with the AMSU-A contractor and GSFC in accordance with the requirements stated in the EOS GIRD (422-11-12-01 Rev. A) and the GIIS (IS-3267415).

This shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: RESERVED

2. CDRL No.: 517

3. Reference:

4. Use:

5. Related Documents:

6. Preparation Information:

DESCRIPTION OF REQUIRED DATA

1. Title:

INDENTURED DRAWING LIST

2. CDRL No.:

518

3. Reference:

Statement of Work (Attachment A of the contract), Para. 3
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)
METSAT Project Configuration Management Plan (S-480-17A)

4. Use:

Reference of all AMSU-A technical information.

5. Related Documents:

CDRL #016, 020, 032, 509, 515-516, 519

6. Preparation Information:

This includes a listing of all AMSU-A Program Specifications, Drawings, Tests, Procedures, etc.

This list shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

EOS AMSU-A INSTRUMENT DESCRIPTION DOCUMENT

2. CDRL No.:

519

3. Reference:

Statement of Work (Attachment A of the contract), Para. 3

4. Use:

Provide understanding of instrument configuration and GSE, operation, and test results to those not directly involved in the AMSU-A development.

5. Related Documents:

CDRL #032, 226, 302-303, 305, 405, 413, 509, 515-516, 518
EOS General Interface Requirements Document (422-11-12-01 Rev. A)
ATN-KLM General Instrument Interface Specification (IS-3267415)
Unique Instrument Interface Specification for the AMSU-A1 (IS-2617547)
Unique Interface Specification for the AMSU-A2 (IS-2624483)

6. Preparation Information:

This document shall describe the AMSU-A instrument system and subsystems, the GSE, and the instrument to spacecraft interface. Test information, sensitivities and calibration results shall be included.

The document is not meant to be an engineering working document but a reference document for Government personnel, scientists, and spacecraft contractor personnel. The report shall be prepared in accordance with S-250-P-1C (Type III). A draft copy shall be submitted for approval by the Technical Officer before printing.

This shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: RESERVED

2. CDRL No.: 520

3. Reference:

4. Use:

5. Related Documents:

6. Preparation Information:

DESCRIPTION OF REQUIRED DATA

1. Title: WEEKLY STATUS REPORTS

2. CDRL No.: 521

3. Reference:

Statement of Work (Attachment A of the contract), Para. 3
Performance and Operational Specification for the AMSU-A (S-480-80, Attachment C of the contract)

4. Use:

Contract status evaluation.

5. Related Documents:

CDRL #203, 512, 530

6. Preparation Information:

On Monday of each week the contractor shall telefax to the Technical Officer a written report indicating the status of the contract as of close of business the preceding Friday, including a summary of progress made. This report shall include, but not necessarily be limited to the following, as required:

a. Technical progress, including significant accomplishments and milestones reached

b. Problems encountered and proposed corrective action

c. Any actual or anticipated slip in schedule

d. Identification of any Class I or Class II changes

Note: This weekly report is intended to be timely and informal and should detail the above topics as changes or problems occur.

These shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: PHOTOGRAPHIC RECORDS

2. CDRL No.: 522

3. Reference:

Statement of Work (Attachment A of the contract)

4. Use:

Program status reviews; system, subsystem, and component packaging evaluations; and trouble shooting.

5. Related Documents:

CDRL #413

6. Preparation Information:

a. Still Photography

Pictures shall be made at appropriate points in the development of AMSU-A. Pictures shall be made of the major subsystems, critical components, the full-up system, and major GSE items. These pictures shall be in color and measure 8 X 10 inches. The pictures shall serve as a record of the build-up of a major component or subsystem; e.g., a typical electronic card, mother board, electronic subsystem with cover off, etc. Pictures of environmental test fixtures shall also be provided. Hard copies and negatives of each picture shall be provided. The contractor should plan on pictures of at least 20 individual items, and 4 copies of each item except for the full-up system which shall require 6 copies of each Flight Model and the Engineering Model.

b. Motion Picture Photography

Minimum TBD feet, Maximum TBD feet
Video tape (1/2 inch VHS format)

DESCRIPTION OF REQUIRED DATA

1. Title: PERFORMANCE ASSURANCE STATUS REPORTS

2. CDRL No.: 523

3. Reference:

Contract Clause H.3
METSAT Project Configuration Management Plan (S-480-17A)

4. Use:

Performance Assurance Status Report data shall be used by GSFC system managers to: (1) evaluate contract performance, (2) identify the magnitude and impact of actual and potential program areas causing significant cost and schedule variances, and (3) provide valid, timely program status information to higher authorities.

5. Related Documents:

CDRL #001, 003-004

6. Preparation Information:

Prepare in accordance with the Performance Measurement System (PMS) Handbook, Section 4. This handbook is Attachment L to the contract.

This shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

MATERIAL USAGE AGREEMENT/STRESS CORROSION EVALUATION

2. CDRL No.:

524

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provide data on material usage, proposed for use on AMSU-A, for GSFC review and approval, when use of a non-compliant material is requested.

5. Related Documents:

CDRL #217, 301
EOS General Interface Requirements Document (422-11-12-01 Rev. A)
ATN-KLM General Instrument Interface Specification (IS-3267415)
Unique Instrument Interface Specification for the AMSU-A1 (IS-2617547)
Unique Interface Specification for the AMSU-A2 (IS-2624483)

6. Preparation Information:

The contractor is allowed to utilize his own reporting system in accordance with the guidelines in the PAR (S-480-79). The contractor shall provide all information requested (per MSFC Spec 522) and shall receive approval from the Contracting Officer.

This data is also to be supplied on a magnetic medium as an ASCII file (with hardcopy documentation of file structures and file names). The required medium is floppy disk(s) compatible with IBM-PC DOS or MS DOS.

This shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: AS-BUILT MATERIALS LIST

2. CDRL No.: 525

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provides data on as-built material usage, proposed for use on AMSU-A, for GSFC review and approval.

5. Related Documents:

CDRL #029, 202, 301, 526

6. Preparation Information

The contractor is allowed to utilize his own reporting system in accordance with the guidelines in the PAR (S-480-79). The contractor shall provide all information requested via the GSFC forms and shall receive approval from the Contracting Officer.

This list is also to be supplied on a magnetic medium as an ASCII file (with hardcopy documentation of file structures and file names). The required medium is floppy disk(s) compatible with IBM-PC and MS DOS.

This shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: ACCEPTANCE DATA PACKAGE

2. CDRL No.: 526

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

To ensure that the deliverable contract end-items are in accordance with contract requirements prior to NASA acceptance.

5. Related Documents:

CDRL #104, 215, 224, 226, 301, 305, 504-507, 525, 527

6. Preparation Information

This acceptance data package shall be prepared in accordance with the PAR (S-480-79) and shall be comprised of the following, as a minimum:

a. As-built configuration list

b. Hardware parts lists

c. Hardware materials and processes lists

d. Test Log Book (including total operating time and cycle records)

e. Open item lists (including reasons for being open)

f. Safety compliance data package

g. Limited life items listings and status

h. Critical parameters trend data

i. Final comprehensive performance test results

This acceptance data package shall be submitted in accordance with Part B (5XX Series) of this document with an additional copy accompanying each end-item.

DESCRIPTION OF REQUIRED DATA

1. Title: AS-DESIGNED PARTS LIST

2. CDRL No.: 527

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract)

4. Use:

Provides a complete list of as-designed parts, planned for AMSU-A use, for review by GSFC.

5. Related Documents:

CDRL #016, 301, 505-506, 526

6. Preparation Information:

Each as-designed parts list shall be a composite of the parts selections for each circuit design in the component. The parts lists shall be updated as the design definition evolves prior to the system Preliminary Design Review (PDR) and shall be updated a second time prior to system Critical Design Review (CDR) to reflect further design changes and refinements. The list shall be placed under configuration control at the time of CDR and be updated as further design changes are approved for the system. As a minimum, each as-designed list shall contain the following information:

a. Part number proposed

b. Part specification control drawing number

c. Common designator or generic number

d. Name or Commercial and Government Entity (CAGE) Code of the part manufacturer or proposed manufacturer

e. Quantity used

f. Drawing number of component to which the list pertains

g. Nonstandard part approval request number and status

h. Applicable waivers/deviations

i. Indication that any data for the line item has changed since the previous parts list submission

j. Critical application designator

This list shall be prepared in accordance with the PAR (S-480-79).

The As-Built Parts List shall be delivered with the final Acceptance Data Package (CDRL #526).

This data is also to be supplied on a magnetic medium as an ASCII file (with hardcopy documentation of file structures and file names). The required medium is floppy disk(s) compatible with IBM-PC and MS DOS.

This list shall be submitted in accordance with Part B (5XX Series) of this document. A separate list shall be submitted for each component.

DESCRIPTION OF REQUIRED DATA

1. Title: RESERVED

2. CDRL No.: 528

3. Reference:

4. Use:

5. Related Documents:

6. Preparation Information:

DESCRIPTION OF REQUIRED DATA

1. Title: REPORTS OF WORK

2. CDRL No.: 529

3. Reference:

Contract Clause C.2

4. Use:

Provides status of contractor work efforts on monthly and final basis.

5. Related Documents:

CDRL #521

6. Preparation Information:

Prepare in accordance with Contract Clause C.2.

These shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: MATERIAL INSPECTION AND RECEIVING REPORT

2. CDRL No.: 530

3. Reference:

Contract Clause E.2

4. Use:

Provides inspection and receiving acknowledgement.

5. Related Documents:

None

6. Preparation Information:

Prepare in accordance with Contract Clause E.2 and with the instructions for DD Form 250.

This shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

DOD INDUSTRIAL PLANT EQUIPMENT REQUISITION (DD FORM 1419)

2. CDRL No.:

531

3. Reference:

Contract Clause G.9
Deliverable Item E2

4. Use:

To request EVS screening of centrally reportable equipment.

5. Related Documents:

None

6. Preparation Information:

Prepare in accordance with the instructions for DD Form 1419.

This shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: DOD PROPERTY RECORD (DD 1342)

2. CDRL No.: 532

3. Reference:

Contract Clause G.9
NASA FAR Supplement Clause 18.52.245-70, "Acquisition of Existing Government Equipment"

4. Use:

Records receipt of and major changes to government owned property.

5. Related Documents:

CDRL #533

6. Preparation Information:

Prepare in accordance with Contract Clause G.9.

Use DD Form 1342, "Centrally Reportable Equipment".

Submit within 15 days of receipt and acceptance of new equipment or when major changes to status occur in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

ANNUAL REPORT OF GOVERNMENT-OWNED/ CONTRACTOR-HELD PROPERTY (NASA FORM 10-18)

2. CDRL No.:

533

3. Reference:

Contract Clause G.10
Deliverable Item E1

4. Use:

Used to track and locate government-owned property.

5. Related Documents:

CDRL #001, 532

6. Preparation Information:

Prepare in accordance NASA FAR supplement clause 18-52.245-73, "Financial Reporting of Government Owned Contractor Held Property".

Use NASA Form 1018.

Deliver no later than July 31 each year.

This shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

MONTHLY AND QUARTERLY FINANCIAL MANAGEMENT REPORT (NASA FORM 533M/533Q)

2. CDRL No.:

534

3. Reference:

Work Breakdown Structure (Attachment B of the contract)
Contract Clauses H.2 and I.10
Deliverable Item E3

4. Use:

For financial analysis.

5. Related Documents:

Contractor Financial Management Reports
NASA Forms 533M and 533Q

6. Preparation Information:

See Clause H.2, "Monthly and Quarterly Contractor Financial Management Reports" (NASA Forms 533M and 533Q), for instructions and distribution.

This shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: 2. CDRL No.:

SUBCONTRACTING REPORTS (STANDARD FORM 294) 535

3. Reference:

Contract Clause H.5

4. Use:

To report on subcontracting goals.

5. Related Documents:

CDRL #011, 536

6. Preparation Information:

Prepare in accordance with Standard Form 294 instructions.

These shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

SUMMARY SUBCONTRACTING REPORT
(STANDARD FORM 295)

2. CDRL No.:

536

3. Reference:

Contract Clause H.5

4. Use:

To report on subcontracting goals.

5. Related Documents:

CDRL #011, 535, 537

6. Preparation Information:

Prepare in accordance with Standard Form 295 instructions.

This shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title:

REPORT ON NASA SUBCONTRACTS
(NASA FORM 667)

2. CDRL No.:

537

3. Reference:

Contract Clause I.9

4. Use:

To provide information on subcontracts to NASA.

5. Related Documents:

CDRL #535-536

6. Preparation Information:

Prepare in accordance with NASA Form 667 instructions and NASA FAR Supplement Clause 18-52.204.70.

This shall be submitted in accordance with Part B (5XX Series) of this document.

DESCRIPTION OF REQUIRED DATA

1. Title: CONFIGURED ARTICLE LIST (CAL)

2. CDRL No.: 538

3. Reference:

Performance Assurance Requirements for the AMSU-A (S-480-79, Attachment D of the contract), Para. 5.4, 8.4, 8.10

4. Use:

Details the actual configuration of the delivered article(s).

5. Related Documents:

CDRL #005, 008, 217, 515, 527

6. Preparation Information:

This data package shall detail, as a minimum, the as-built configuration of the delivered article(s) by delineating the following details for each major subassembly contained within the delivered article(s).

a. Hardware subsystems

- Nomenclature
- Specification/assembly identification number
- Serial number
- As-built revision number

b. EOS software items

- Software module title
- Code identification or serial number
- Software inventory numbering system
- Module revision number

This shall be submitted in accordance with Part B (5XX Series) of this document.